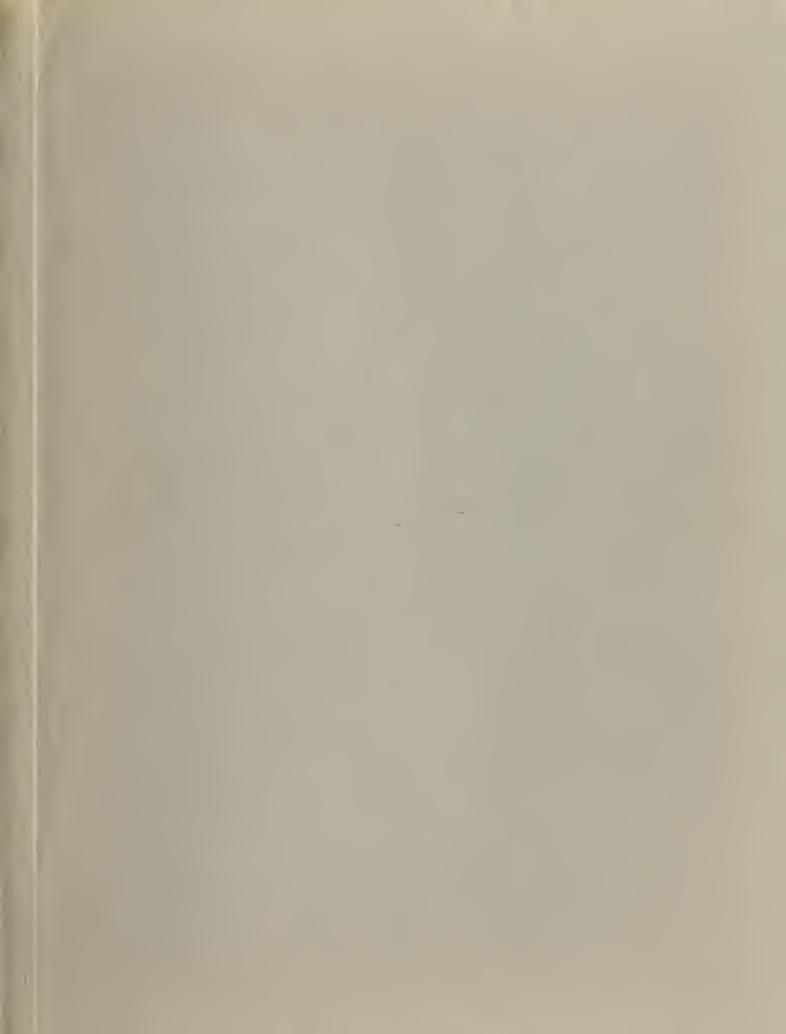
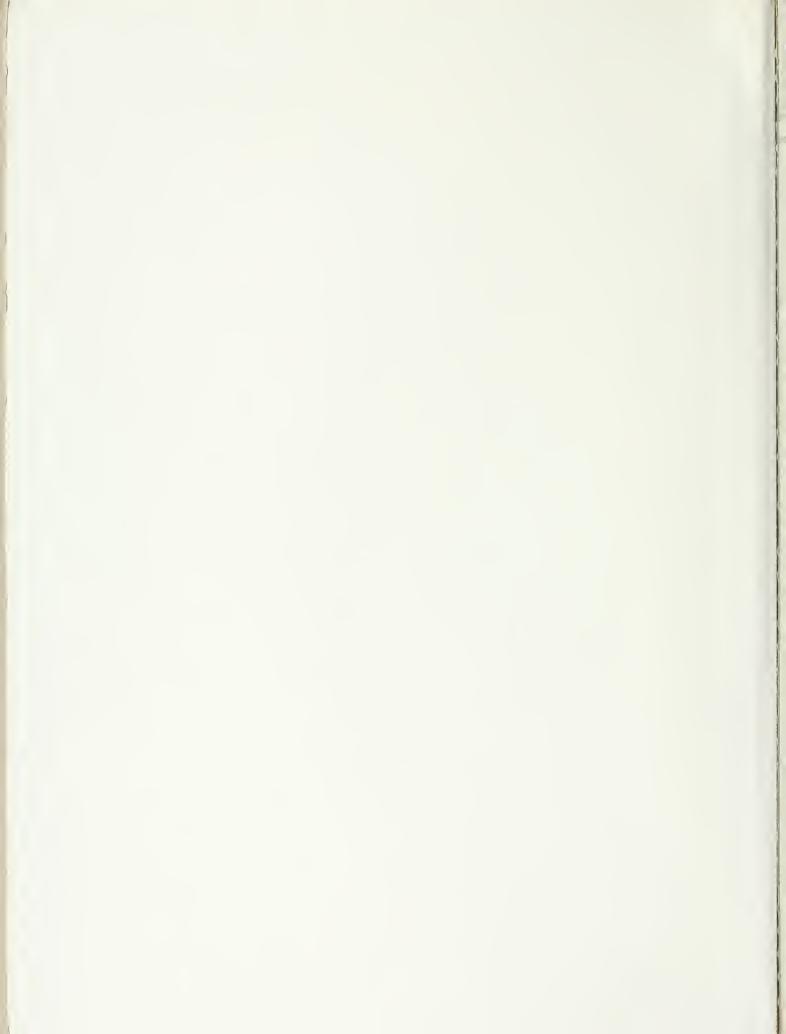


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## STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF RESOURCES PLANNING

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### Bulletin No. 65-57

# QUALITY OF SURFACE WATERS IN CALIFORNIA

1957

EDMUND G. BROWN
Governor



HARVEY O. BANKS
Director of Water Resources



# STATE OF CALIFORNIA DEPARTMENT OF WATER RESOURCES DIVISION OF RESOURCES PLANNING

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HARVEY O. BANKS Director of Water Resources

December 1960

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## Department of Water Resources

SACRAMENTO

December 30, 1960

Honorable Edmund G. Brown, Governor and Members of the Legislature of the State of California

Water Pollution Control Boards

Gentlemen:

I have the honor to transmit herewith a report on the quality of surface waters in California. This is the third in a series of reports concerning this important matter, and covers the period January through December 1957.

This statewide Water Quality Monitoring Program, authorized by Section 229 of the Water Code, was initiated in April 1951, at the request of the State Water Pollution Control Board and has been conducted by the Department of Water Resources in cooperation with the State Department of Public Health, Bureau of Sanitary Engineering; the State Department of Fish and Game; the United States Geological Survey; and with various other agencies and individuals. Its objective is to secure and interpret data on prevailing quality of water in the major streams and lakes in California, to evaluate trends in water quality conditions, and to ascertain causes for changes in water quality. These data are utilized by the Department of Water Resources in conducting water resources development studies and implementing water development programs; by the regional water pollution boards in establishing waste discharge requirements for the protection of surface waters in California; and by other water agencies throughout the State.

With few exceptions, the surface waters in Northern California during 1957 were found to be of excellent quality. Surface waters in Southern California during

the same period, on the other hand, varied in quality from excellent to poor, with the poorer quality waters found in the lakes in that area. The lakes having the poorer quality water are those which receive relatively high volumes of drainage water and are at the same time subject to high evaporation rates.

The results of the 1957 survey of radioactivity in surface waters indicate few significant changes from that found in 1955-56. The radioactivity levels in the waters of the northern part of the State were found to be generally lower than in 1955-56, while those in Southern California generally show a slight increase. However, all values were found to be substantially below the accepted safe limits.

Very truly yours

HARVEY O. BANKS

Director

#### ACKNOWLEDGMENTS

The extensive coverage of the statewide surface water quality monitoring program is made possible through the cooperation of federal, state, and local agencies. The helpful cooperation of the following agencies in respect to this program is gratefully acknowledged:

#### Federal Agencies

Department of the Army

Corps of Engineers

Department of the Interior

Bureau of Reclamation

Geological Survey

#### State Agencies

California Disaster Office, Radiological Service

Department of Fish and Game

Department of Public Health

Bureau of Sanitary Engineering

Division of Laboratories

State Water Pollution Control Board

#### Other Public Agencies

City of Long Beach, Department of Public Health

City of Los Angeles

Department of Water and Power

Department of Public Health

City of San Bernardino

City and County of San Francisco

Los Angeles County Flood Control District

#### Other Public Agencies (cont.)

Ventura County, Water Resources Division

The Metropolitan Water District of Southern California

Kern County Land Company

Kings River Water Association

The Department of Water Resources wishes to thank the following federal and state agencies who granted permission for inclusion in this report of unpublished water quality data collected under their various programs:

United States Department of the Interior
Geological Survey

Bureau of Reclamation

United States Department of Health, Education, and Welfare
Public Health Service

Central Valley Regional Water Pollution Control Board (No. 5)

The United States Geological Survey performed a substantial portion of the laboratory mineral analyses required by this program under a cooperative agreement with the Department of Water Resources. The bacteriological determinations were made by the California State Department of Public Health and the radiological determinations by the California Disaster Office, both under service contracts with the State Water Pollution Control Board.

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#### INTRODUCTION

This bulletin, one of a series concerning surface water quality conditions in California, presents data collected routinely by all federal, state, and local agencies conducting surface water monitoring programs in California. In addition to presenting the basic data, this bulletin also presents an evaluation of significant quality variations detected at all sampling stations and, where possible, an explanation of the causes of these variations.

In order to make monitoring data available as soon as possible, the Department of Water Resources publishes and distributes to water pollution control, public health and other interested agencies and individuals, a monthly report containing the quality information collected by the department's surface water quality monitoring program and a preliminary evaluation of quality variations detected during the month.

Agricultural, industrial, and urban water uses in California contribute significant amounts of wastes to surface and ground water supplies. In some instances, the wastes are harmful, or potentially so, to the State's water resources. The early detection and control of quality degradation is imperative if the fullest practicable beneficial uses are to be made of the available water supplies.

In April 1951, a continuing stream sampling program was initiated at the request of the State Water Pollution Control Board, for surveillance of the quality of the State's surface water supplies. Since that time, this program has been conducted by the Department of Water Resources in cooperation with the State and Regional Water Pollution Control Boards and other agencies and individuals. A similar program was instituted in 1953 to monitor the quality of the State's ground waters.

The surface water quality program reported herein is authorized by Section 229 of the Water Code. This section directs that:

"The Department (of Water Resources), . . . shall investigate conditions of the quality of all waters within the State including saline waters, coastal and inland, as related to all sources of pollution of whatever nature and shall report thereon to the Legislature and to the appropriate regional water pollution control board annually, and may recommend any steps which might be taken to improve or protect the quality of such waters."

This is the third of a series of bulletins presenting water quality data collected on a statewide basis and covers the calendar year 1957. Data for previous periods are included in the following reports: California Department of Public Works, Division of Water Resources, Water Quality Investigations, Report No. 15, "Quality of Surface Waters in California, 1951-1954"; and California Department of Water Resources, Division of Resources Planning, Bulletin No. 65, "Quality of Surface Waters in California, 1955-1956".

While the data presented herein were, for the most part, collected under the department's surface water quality monitoring program, every effort has been made to include comparable data collected under various programs conducted by other agencies (see Acknowledgments).

The basic objectives of the surface water quality monitoring program are:

- (a) to secure continuous and reliable water quality data, on a monthly basis, from a network of stations which will provide representative data of the quality of water in the major surface streams and lakes of the State;
- (b) to evaluate and interpret chemical, physical, biological and radiological information collected during the course of this program to develop a comprehensive understanding of the factors which make up and alter the water quality at any station; and,

(c) to detect changes in water quality and to notify the appropriate control agency, (regional water pollution control boards, state and local health departments, State Department of Fish and Game) when warranted.

The statewide water quality monitoring program in 1957 involved the collection and analyses of samples from 183 stations on 100 streams and lakes throughout California by various federal, state and local agencies (Plate 1). The program of the Department of Water Resources comprised the monthly collection and analysis of samples from 157 of these stations on 90 California streams and lakes.

The discussion of water quality is presented in this report by water pollution control regions, starting with Region 1 and progressing through Region 9. Within each region, the discussion is presented by drainage basin, the main stream of each basin being discussed first, followed by a discussion in downstream order of its tributaries. Each discussion will include only those constituents which were found to vary significantly.

Appendix A of the report contains a discussion of field and laboratory procedures and methods, and the criteria utilized in evaluating the quality of water. Appendix B contains monitoring station descriptions and locations, and the physical, chemical, bacteriological and radiological data for samples collected during 1957 at the 183 stations aforementioned. Also presented in Appendix B are graphs showing the monthly variation, for the past five years (1953-1957), of total dissolved solids for those stations in the Department of Water Resources' stream sampling program with a record of five years (1953-1957) or longer.

#### SURFACE WATER QUALITY

#### Summary

With few exceptions, the surface waters in Northern California during 1957 were found to be of excellent quality. Surface waters in Southern California during the same period, on the other hand, varied in quality from excellent to poor, with the poorer quality waters found in lakes which receive drainage waters and are subject to high rates of evaporation.

As indicated by Plates B-1 through B-67, the monthly variation in total dissolved solids is, in most cases, related to the seasonal flow and use variations of the watershed. Concentrations of most constituents tend to increase during the summer months when use is at a maximum and flow is at a minimum, reaching the extreme just prior to the start of the fall rains. In some cases, such as the Russian River near Hopland (Plate B-5), Mission Creek at Whittier Narrows (Plate B-16), and San Joaquin River at Friant (Plate B-47), the variations in flow and use have little or no apparent effect on the concentration of dissolved constituents.

The results of the 1957 survey of radioactivity in surface waters indicate few significant changes from that found in 1955-56. The radioactivity levels in the waters of the northern part of the State were found to be generally lower than in 1955-56 while those in Southern California generally showed a slight increase. However, the radioactivity levels were substantially lower than the recommended allowable limits.

#### North Coastal Region (No. 1)

A total of fifteen stream sampling stations are located on streams in the North Coastal Region (Plate 1), as indicated in the following tabulation:

Smith River (1) Klamath River (3) Trinity River (2) Eel River (2) Eel River, South Fork (1)
Russian River (4)
Russian River, East Fork (2)

Surface waters of this region were generally bicarbonate type with calcium and magnesium constituting the major cations. Mineral analyses of samples collected monthly during 1957 indicated only seasonal variation in concentration of constituents, and in most cases, only minor variations from values found in previous years. These waters ranged from soft to moderately hard with total dissolved solids (TDS) reaching 194 parts per million (ppm). All 15 of the stations in this region have a period of record of five years or longer. Graphs showing monthly variation in TDS for the past five years (1953-1957) for stations in this region are presented in Appendix B on Plates B-1 through B-8. High boron concentrations have been prevalent in the Russian River. The 1957 boron values, although high, were significantly lower than values found in previous years. Radioactivity levels were slightly below those for previous years with the exception of the Eel and Russian Rivers which were slightly higher.

The <u>Smith River</u> waters near Crescent City (Station 3a) continued to be of excellent quality, magnesium bicarbonate in character, class 1 for irrigation use, and met drinking water standards for mineral content.

During 1957, the total dissolved solids content ranged between 44 and 90 ppm (Plate B-7). No significant changes in concentration of constituents in this water have been detected since sampling began in April 1951.

The Klamath River was sampled at three points: near Copco (Station 1), at Somesbar (Station 2) and near Klamath (Station 3). The Klamath River remained class 1 for irrigation use, and met drinking water standards for mineral content during 1957. It was a bicarbonate type water with no major cation. There was no marked change in concentration

of constituents between the headwaters and the mouth. The maximum total dissolved solids concentration, observed in 1957 (Plates B-2 and B-3), 162 ppm, occurred at Copco, the uppermost sampling station on the river. Only slight variations in hardness and boron have been noted since the beginning of the program in 1951. The 1957 hardness maximum, 80 ppm, was observed at the station near Klamath, and the highest boron concentration, 0.19 ppm, was measured at Somesbar.

Samples were collected from the <u>Trinity River</u> at Lewiston (Station 4a) and near Hoopa (Station 4). Only insignificant deviations in concentration of mineral constituents have been detected since sampling was initiated at these stations in April 1951, and no noticeable variation in the quality of the river between the two stations was detected in 1957. The water, with a total dissolved solids concentration of less than 150 ppm during 1957 (Plates B-7 and B-8), was of excellent quality and met drinking water standards for mineral content and class 1 standards for irrigation use.

The <u>Eel River</u> showed similar mineral concentrations near McCann (Station 5) and at Scotia (Station 6) during 1957. The water was calcium bicarbonate in character, slightly to moderately hard, class 1 for irrigation and met drinking water standards for mineral content. Total dissolved solids concentrations ranged between 66 and 180 ppm (Plate B-1). No large changes in total dissolved solids have been found since sampling began in April 1951. The radioactivity of the Eel River reached 45.1 ± 12.0 micro-micro-curies per liter of dissolved beta near McCann (Station 5) in May 1957, a marked increase over the activity for the previous years. However, the significance of this increase, which was not in evidence in the May sample from the downstream station (Station 6) or in the September samples from both stations, cannot be evaluated until a longer period of record is available.

During 1957, the South Fork of the Eel River, which enters the main stem between Stations 5 and 6, was sampled near Miranda (Station 7). The South Fork, with a maximum total dissolved solids concentration of 150 ppm in 1957 (Plate B-2), showed no appreciable difference in quality or character from the water in the main stem. The water continued to be suitable for nearly all uses with only minor variations in quality being detected since sampling was initiated in April 1951.

Four monitoring stations are located on the Russian River: near Ukiah (Station 10b), near Hopland (Station 8a), near Healdsburg (Station 9), and at Guerneville (Station 10). Russian River water was of good to excellent quality, and suitable for most uses. During 1957, the maximum observed values for total dissolved solids varied between 150 ppm at Ukiah and 190 ppm at Guerneville (Plates B-4 and B-5). However, boron concentrations, which reached 0.94 ppm during 1957, periodically placed this water in the class 2 category for irrigation uses. The overflow from a well located between Hopland and Healdsburg previously had contributed considerable quantities of boron to the Russian River. This overflow was removed from the river in September 1956. With the termination of this discharge, the maximum boron concentration in the river fell from 4.3 ppm in 1955-1956 to the 0.94 ppm reported in 1957. The continuing presence of boron in the river indicates that other sources besides discharge from the well contribute boron to the river. These other sources are believed to be a characteristic of the geology of the watershed. The dissolved oxygen concentration decreased to 1.4 ppm in December 1957, at Station 10 while remaining normal at the other stations. The cause of this oxygen depletion could not be ascertained. Radioactivity in this water, while slightly higher in September 1957 than in May, was still well within the recommended safe limits.

The East Fork of the Russian River, which also contains imported Eel River water, was sampled at Potter Valley Powerhouse (Station 10a) and near Calpella (Stàtion 8). Analyses of samples collected at these stations have shown only minor variations in quality since sampling began in 1951, and indicate little or no difference between the water of the East Fork and that of the main stem. While the hardness reached 105 ppm in January, it was less than 85 ppm the other eleven months of 1957. Boron concentrations in the East Fork water reached 0.73 ppm in 1957, placing this water in class 2 for irrigation use. The high boron concentration in the East Fork indicates that the boron problem in the Russian River probably originates at or near the headwaters of the river and its tributaries. As boron concentrations are also high in the Clear Lake area, located just across the drainage divide from the headwaters of the Russian River, it is probable that boron is an integral part of the geologic characteristics of this area.

#### San Francisco Bay Region (No. 2)

A total of five surface water monitoring stations are located on streams in the San Francisco Bay Region (Plate 1), as indicated in the following tabulation:

Napa River (1) Coyote Creek (1)
Carquinez Straits (1) Los Gatos Creek (1)
Alameda Creek (1)

The waters of this region were bicarbonate in character with major base constituents consisting of calcium, magnesium, or sodium, depending upon the mineral composition of the rock formations of the individual drainage basin. No large changes in water quality have been detected in this region since sampling was started in December 1951. The waters were, with the exception of those in the tidewater reaches, good to excellent in quality and suitable for most beneficial uses during 1957.

Graphical presentations of the monthly variation in total dissolved solids for the four stations that have a period of record of five years (1953 through 1957) appear on Plates B-9 and B-10 in Appendix B. Although some of the largest waste discharges in Northern California are located in Region 2, most of them discharge directly to the San Francisco Bay below these sampling stations and their effects were not reflected in analyses at these points. The radioactivity in the waters of this region, while far below the recommended safe maximum, were slightly higher during 1957 than during previous years.

Samples of water were collected from the <u>Napa River</u> near St.

Helena (Station 72). While these waters were suitable for most beneficial uses, the boron concentration, which ranged from 0.14 to 0.94 ppm during 1957, was often above the limit recommended for class 1 irrigation water.

The concentrations of constituents found in 1957 do not represent a significant change from values found since December 1951.

Martinez (Station 28a) during 1957. The fluctuation in mineral quality of the water at this station is due mainly to the interrelationship between sea water and the quantity of fresh water outflow from the Sacramento-San Joaquin Delta. During 1957, conductivity ranged between 281 and 22,354 micromhos and total dissolved solids ranged between 196 and 15,624 ppm.

The high concentrations occurred during a period of relatively low stream flows while the low values occurred during a period of high stream flow.

Boron concentrations in Alameda Creek near Niles (Station 73) ranged between 0.68 and 1.4 ppm, placing it in class 2 for irrigation.

During 1957, this water was consistently in the very hard classification

with a range in total hardness from 276 to 474 ppm. Total dissolved solids reached 900 ppm in December (Plate B-9), the highest concentration recorded since sampling began in December 1951. Most constituents were found in slightly higher concentrations during 1957 than in previous years.

Only minor changes in the concentration of constituents have occurred since 1952, when sampling of <u>Coyote Creek</u> near Madrone (Station 82) was initiated. During 1957 the water was moderately hard (140-178 ppm hardness) and the total dissolved solids remained relatively constant between 185 and 235 ppm during 1957 (Plate B-9).

Los Gatos Creek was sampled near the headwaters at Los Gatos (Station 74). With the exception of 1956, there has been a gradual increase in the concentration of most constituents in this water since sampling began in December 1951. The generally lower mineral concentrations found in 1956 may be attributed to the high flows which occurred during December 1955, and January 1956. The 1957 range in hardness was 89-388 ppm and the range in total dissolved solids was 140-470 ppm (Plate B-10).

#### Central Coastal Region (No. 3)

During 1957, water samples were collected from eight monitoring stations located on the following Central Coastal Region streams (Plate 1), as indicated by the following tabulation:

San Lorenzo River (1)
Soquel Creek (1)
Uvas Creek (1)
Salinas River (1)
Carmel River (1)
Santa Ynez River (2)
Pajaro River (1)

The waters of this region were bicarbonate type, with calcium and sodium as the major cations. High hardness and total dissolved solids were characteristic of the region. Graphical representations of the monthly variation in total dissolved solids for the period 1953 through 1957 for

stations located in this region, all of which have a period of record of five years or longer, are presented on Plates B-ll through B-l4 in Appendix B. Little variation has been noted in the quality of the waters since the beginning of the program. Radioactivity showed no significant change from previous years.

The waters of San Lorenzo River at Big Trees (Station 75)
were calcium bicarbonate in character, of excellent quality and suitable
for nearly all beneficial uses during 1957. The water was moderately
hard with concentrations of constituents well below the maximum values
allowable for all but the most exciting industrial uses. Hardness reached
140 ppm and total dissolved solids 225 ppm (Plate B-12) in 1957, representing no significant change from values found since observations began at
the station in December 1951.

The water of <u>Soquel Creek</u> at Soquel (Station 76) was usually of good quality and suitable for nearly all uses. It was calcium bicarbonate in character, moderately to very hard, with the maximum in 1957 reaching 310 ppm total hardness and total dissolved solids ranging between 230 and 525 ppm (Plate B-14). No significant variations in concentration of constituents have been noted since sampling began at this station in December 1951.

Uvas Creek was sampled near Morgan Hill (Station 96). The entire flow from this stream, except during flood stages, is diverted at Uvas Dam for the municipal supply of the City of Gilroy. Analyses of this water show little change in quality since sampling began in July 1952. It was calcium bicarbonate in character, class 1 for irrigation, and met drinking water standards for mineral content. Hardness was consistently high, with a maximum concentration of 198 ppm in 1957.

Pajaro River near Chittenden (Station 77) has limited use because of excessive concentrations of mineral constituents. During 1957, hardness reached 600 ppm, boron 1.6 ppm, chlorides 374 ppm, sulfates 263 ppm, and conductance 2,020 micromhos. These values do not represent a significant variation from other values observed since sampling began in December 1951. Concentrations of the above magnitude are sufficient to place this water in class 2 or 3 for irrigation uses and to make softening desirable prior to domestic use.

During 1957, water samples were collected from the Salinas River at Paso Robles (Station 43a). The water was calcium-magnesium bicarbonate and class 1 for irrigation during 1957, but total dissolved solids were above the desirable limit for drinking water, reaching approximately 600 ppm in June (Plate B-12). No appreciable changes in concentration of constituents have been noted in this water since sampling began in April 1951.

The quality of <u>Carmel River</u> near Carmel (Station 83) has shown no significant changes since sampling began in January 1952. The water was bicarbonate type with calcium and sodium as major cations and was class 1 for irrigation use. Hardness, which varied from 112 to 231 ppm, placed it in the moderately to very hard classification.

Santa Ynez River was sampled below Los Laureles Canyon (Station 45), and at Solvang (Station 45a). The quality of this water has not changed appreciably since sampling began in April 1951. Concentrations of total dissolved solids placed this water in the class 2 irrigation category (Plate B-13). Concentrations of 626 ppm hardness and 341 ppm sulfates, in addition to a high total dissolved solids value of 1,000 ppm at Station 45, made this water questionable for domestic uses and

undesirable for all but the least demanding industrial uses. The quality of water at the downstream Station 45a was only slightly better. At this point, the total dissolved solids, hardness, and sulfates reached maximum concentrations of 900 ppm, 592 ppm, and 262 ppm, respectively. Although water quality can generally be expected to vary with flow, analyses for the year 1957 showed little variation in concentration regardless of flow. This indicates that the quality of water from tributary streams was similar to that found in the Santa Ynez River.

#### Los Angeles Region (No. 4)

Water quality samples were collected from 17 stations in the Los Angeles Region during 1957 (Plate 1), as indicated in the following tabulation:

Ventura River (1)
Matilija Creek (1)
Santa Clara River (3)
Piru Creek (1)
Sespe Creek (1)
Santa Paula Creek (1)
Mono-Owens Aqueduct (1)

Los Angeles River (2)
San Gabriel River (3)
Rio Hondo (1)
Mission Creek (1)
Metropolitan Water
District Aqueduct (1)

Surface waters in this region vary widely in quality and character, depending on location, amount of flow, and type of waste discharges entering the streams. The rainfall was much less than normal during the 1956-1957 season throughout most of Southern California. On many streams reduced runoff resulted in low flows and poor water quality. Monthly variations in total dissolved solids at the nine stations that have a period of record of five years (1953-1957) are presented graphically on Plates B-15 through B-19 of Appendix B.

Ventura River was sampled near Ventura (Station 61) and Matilija Creek, a tributary to Ventura River, was sampled two miles above Matilija Dam (Station 45b).

Station 61 on <u>Ventura River</u> is located just downstream from the confluence of Coyote Creek and Ventura River near Ventura. In 1957, construction started on Casitas Dam on Coyote Creek. In October 1957 the river was dry at Station 61 for the first time during the six-year period of sampling. The quality of the water at this station has shown very little change since its initiation into the program in April 1951. During 1957, it was very hard and ranged from class 1 to 2 irrigation water. Boron content ranged from 0.00 to 0.82 ppm during 1957, while electrical conductivity ranged from 597 to 1,613 micromhos. The mineral content of Ventura River water usually met drinking water standards, except, in some instances during low flow, when sulfate and total dissolved solids (Plate B-19) content exceeded the recommended limit. These waters were usually calcium sulfate-bicarbonate to calcium bicarbonate-sulfate in character.

Matilija Creek, two miles above Matilija Dam (Station 45b), has shown no appreciable change in quality since 1953. The water was usually calcium sulfate-bicarbonate in character with conductivity ranging between 943 and 1,428 micromhos, and hardness between 384 and 473 ppm. It was class 3 water for irrigation use and often contained sulfate concentrations which exceeded the desirable mineral content for drinking water. Boron continued to be a significant problem with concentrations ranging from 0.56 to 4.8 ppm in 1957. The boron content of water taken from Matilija Creek has been reported as high as 6.4 ppm prior to 1957.

The <u>Santa Clara River</u> system was sampled at the following six stations during 1957: Santa Clara River at the Los Angeles-Ventura County line (Station 46), Santa Clara River at Blue Cut (Station 46b), Santa Clara

River near Santa Paula (Station 46a), Piru Creek at Piru (Station 46c),
Sespe Creek near Fillmore (Station 46d), and Santa Paula Creek near Santa
Paula (Station 46e). Stations 46c, d, and e were added to the sampling
program in June 1957, to monitor the important tributaries to the Santa
Clara River. Data collected at Station 46, one mile upstream from
Station 46b, indicated that this reach of the Santa Clara River can be
adequately monitored at one station. Accordingly, Station 46b was dropped
from the program at the end of 1957.

Santa Clara River water continued to be poor in quality, high in sulfate content, and extremely hard. Very little change in water quality has been noted since sampling began in 1951. Conductivity ranged from 1,493 to 2,058 micromhos near Santa Paula (Station 46a) and 1,862 to 3,509 micromhos at the Los Angeles-Ventura County line during 1957. This improvement in quality is attributed to the effect of better quality inflow from Piru and Sespe Creeks. The highest boron concentration of the three stations on Santa Clara River in 1957 was 1.56 ppm at the Los Angeles-Ventura County line (Station 46).

A sampling station on <u>Piru Creek</u> at Piru (Station 46c) was established in June 1957. Piru Creek is a major tributary to Santa Clara River and joins the river below this station. The surface waters at this station have sulfate as their predominant anion, but have no predominant cation. In 1957, the total dissolved solids content varied from 1,140 to 1,790 ppm. For irrigation use, water was class 2 at high flows and class 3 at low flows. Boron was high, ranging from 1.6 to 2.0 ppm. Hardness ranged from 518 to 924 ppm. The water did not meet drinking water standards for mineral content. Santa Felicia Dam, about five miles upstream from Piru, was completed in 1956 and storage of Piru Creek water was begun.

Sampling of Sespe Creek near Fillmore (Station 46d) was initiated in June 1957 to monitor this important tributary to the Santa Clara River.

During 1957, Sespe Creek water varied from calcium-sodium sulfate-bicarbonate in character at low flows to calcium sulfate-bicarbonate at high flows.

Boron ranged from 1.50 to 3.12 ppm and electrical conductivity ranged from 1,067 to 1,718 micromohos. This water was class 1, 2, or 3 for irrigation use, depending on the magnitude of the flow, with boron and electrical conductivity as the main limiting factors.

A monitoring station was established in June 1957 on Santa Paula Creek near Santa Paula (Station 46e), to determine the water quality of this important tributary of the Santa Clara River. The station is about four miles upstream from the confluence with Santa Clara River. During 1957, Santa Paula Creek water was calcium bicarbonate-sulfate in character at high flow but shifted to sodium-calcium sulfate-bicarbonate at low flow. Total hardness of these waters ranged from 319 to 481 ppm and conductivity between 842 and 1,418 micromhos. The water met mineral standards for drinking water except at extreme low flows when the sulfate content, which was 265 ppm in September, exceeded the recommended limit.

A water sample was collected each month from Mono-Owens Aqueduct at its terminus at Upper San Fernando Reservoir near San Fernando (Station 70) and analyzed by the Los Angeles Department of Water and Power. The water was excellent in quality, ranging from 163 to 227 ppm total dissolved solids in 1957 (Plate B-16). It was calcium-sodium bicarbonate in character and soft. The quality has not changed appreciably since the initiation of the sampling program in April 1951.

The Los Angeles River Channel, which was sampled in Los Angeles at Figueroa Street (Station 47), and in Long Beach (Station 48), continues

to serve the Los Angeles metropolitan area as a drainage channel for storm runoff and many industrial waste discharges. The flow at Station 47, consisting mainly of surface drainage and industrial waste discharges from San Fernando Valley, was continuous throughout 1957. During the year, the surface flow at Station 47 remained sodium chloride-sulfate in character and class 3 water for irrigation use, except during periods of rain runoff when the water quality improved. The water was very hard, ranging from 315 to 995 ppm total hardness.

Oil brine wastes, which are discharged into the river just upstream from Station 48, contribute to the high concentrations of salts in the river at this point. Arsenic concentrations of 2.5 and 2.0 ppm were found in the May and September 1957 heavy metals analyses. The arsenic content of 2.5 ppm is the highest value found since it was first detected at this station in October 1952. The general water quality of the river has not changed appreciably since sampling began in April 1951, except that during periods when the river flow is increased by storm runoff significant water quality improvement occurs.

The San Gabriel River was sampled at the following three stations in 1957: at Azusa Powerhouse (Station 50d), at Azusa (Station 50a), and at Whittier Narrows (Station 50). A review of sampling data from Station 50a reveals long periods with no flow, and as a result, this station was discontinued at the end of 1957 in favor of an upstream station at Azusa Powerhouse (Station 50d), established in June 1957. Water sampled at the Azusa Powerhouse was native San Gabirel River water. It was calcium bicarbonate in character and moderately hard. Conductivity ranged from 330 to 417 micromhos. It was class I water for irrigation use and met drinking water standards for mineral content.

Raw Colorado River water has at times been released from Puddingstone Reservoir and channeled down Walnut Creek and entered the San

Gabriel River at San Bernardino Road, five miles upstream from Station 50.

These releases are used for spreading operations in the Montebello Forebay
to the Central Coastal Plain Pressure Area. Except for these releases,
there was no flow at this station during the summer months of 1957. The
native quality of San Gabriel River water at this station was similar to
that in upper reaches of the river except that the range in conductivity
values increased from 581 to 1,302 micromhos and it was very hard. This
native water was class 1 for irrigation uses and met drinking water
standards for mineral content. When raw Colorado River water was flowing
in the channel or was mixed with the native water, the quality became
class 2 irrigation water.

Rio Hondo was sampled at Whittier Narrows (Station 49). Except during periods of rain runoff, the Rio Hondo flow consists primarily of effluent ground water from the Main San Gabriel Basin. In 1957 Rio Hondo water was calcium-sodium bicarbonate in character. Chlorides ranged between 33 and 246 ppm. Total dissolved solids ranged between approximately 320 and 1,000 ppm, at times exceeding the limits recommended for drinking water (Plate B-17). The water at this point has shown a general improvement in quality since 1952 but it still remains class 2 irrigation water.

Mission Creek at Whittier Narrows (Station 49a), consists of ground water rising between San Gabriel River and Rio Hondo, in Whittier Narrows. Mission Creek is tributary to Rio Hondo just below this station. During 1957, the waters of this creek were found to be calcium bicarbonate in character and of good mineral quality. They were moderately hard and usually class 1 for irrigation use. Electrical conductivity reached 1,224

micromhos in March 1957, the highest value reported since sampling began in April 1951. This high conductivity was accompanied by the record chloride of 218 ppm. The water met drinking water standards for mineral content.

A monthly composite sample of raw Colorado River water was collected from the Metropolitan Water District Aqueduct at the F. E. Weymouth Memorial Softening and Filtration Plant at La Vern (Station 69) by the Metropolitan Water District of Southern California. The 1957 mineral analyses were characteristic of Colorado River water and showed no important change since the last report period of 1955-56. The water remained sodium-calcium sulfate in character and very hard. Total dissolved solids have shown a gradual increase in concentration since sampling began at this station in March 1951, reaching a maximum of approximately 820 ppm in February 1957 (Plate B-15).

## Central Valley Region (No. 5)

For convenience of discussion, this large region is subdivided into four separate areas. The portion of the region making up the Sacramento River Valley is designated as 5a, the San Joaquin River Valley is 5b, the Sacramento-San Joaquin Delta area is 5c, and the Tulare Lake Basin is 5d.

Surface water monitoring samples were collected in this region during 1957 from a total of 101 stations (Plate 1), as indicated in the following tabulation:

## Sacramento River Valley (5a)

Sacramento River (11) Yuba River (2) McCloud River (1) Bear River (1) Sacramento Slough (1) Pit River (2) Burney Creek (1) American River (3) Cottonwood Creek (1) Stony Creek (1) Colusa Trough (1) Mill Creek (1) Deer Creek (1) Clear Lake (2) Big Chico Creek (1) Cache Creek (2) Cache Creek. North Fork (1) Butte Creek (1) Feather River (2) Putah Creek (1) Indian Creek (1) Lindsey Slough (1) South Honcut Creek (1) Cache Slough (1)

# San Joaquin River Valley (5b)

San Joaquin River (21)
Salt Slough (1)
Bear Creek (1)
Merced River (2)
Tuolumne River (3)

Stanislaus River (2)
Calaveras River (1)
Mokelumne River (4)
Cosumnes River (1)

# Sacramento-San Joaquin River Delta (5c)

Delta-Mendota Canal (2)

Old River (5)

False River (1)

Italian Slough (1)

Indian Slough (1)

Dutch Slough (1)

Rock Slough (1)

Stockton Ship Channel (1)

Little Potato Slough (1)

Contra Costa Canal (1)

Delta Cross Channel (1)

# Tulare Lake Basin (5d)

Kern River (3)

Tule River (1)

Kings River (3)

Surface waters of the Central Valley Region are of varying quality. The waters draining from the Sierra Nevada, and Cascade and Trinity Mountains generally are of excellent quality, while those draining from the Tehachapi Mountains and coastal ranges vary from poor to excellent quality. Valley floor waters vary in quality according to the proportion in which the above groups of waters are mixed and the quantities of wastes discharged to the

streams. Conductivity values in the Central Valley Region ranged between 17.6 micromhos in the Kings River below North Fork (Station 33c) and 6,166 micromhos in the San Joaquin River above Salt Slough (Station 111b) during 1957. Monthly variations in total dissolved solids at 76 stations that have a period of record of five years (1953-1957) are presented graphically on Plates B-20 through B-55 in Appendix B.

## Sacramento River Valley (5a)

The Sacramento River flows for a distance of about 390 miles and drains the Sacramento Valley. The river originates in the Cascade Range near the base of Mount Shasta, and after passing through Shasta Reservoir, enters the valley proper below Red Bluff. Approximately 250 miles below Red Bluff, the river enters the Sacramento-San Joaquin Delta downstream from the City of Sacramento.

The upper reaches of the river are used primarily for recreation. In the reach between Shasta Dam and the Sacramento-San Joaquin Delta, municipal, industrial, and agricultural uses, in addition to recreational uses, become the predominant forms of water utilization. A large portion of the wastes discharged to the Sacramento River during the summer months are from agricultural drainage. The Cities of Redding and Red Bluff discharge domestic waste, the quality of which is reasonably constant throughout the year. In the City of Sacramento, on the other hand, large cannery operations contribute wastes mainly during the summer season. In addition to the foregoing, increasing quantities of industrial wastes also are discharged to the river.

To maintain a continual check on the quality of the Sacramento River, 11 monitoring stations have been established between the headwaters and the mouth. These stations, selected so as to indicate changes in

quality caused by tributaries and wastes discharged to the river, are, in downstream order: Sacramento River at Delta above Shasta Lake (Station 11), at Keswick (Station 12), near Redding (Station 12a), at Bend (Station 12c), near Hamilton City (Station 13), at Butte City (Station 87a), at Knights Landing (Station 14), at Sacramento (Station 15), at Snodgrass Slough (Station 97), at Rio Vista (Station 16) and at Toland Landing (Station 15a).

With the exception of a heavy metals problem in the vicinity of the Keswick station, the quality of the Sacramento River was excellent. At certain times during 1957 these heavy metals were in sufficient quantities to cause appreciable fish kills. According to the U. S. Fish and Wildlife Service fish kills were recorded in January, February, and September 1957. The source of these heavy metals was apparently Spring Creek, which enters the Sacramento River just upstream from Keswick Dam.\*

This creek drains an area occupied by numerous abandoned and operating mines. The drainage from these mines was very acid and carried in solution high concentrations of iron, aluminum, copper, zinc, and probably other toxic metals. When Sacramento River flow reaches Station 12a near Redding, mixing and dilution, and possibly precipitation usually reduces the heavy metals to negligible concentrations.

Wastes discharged into the Sacramento River, although substantial in quantity, are diluted to such an extent by good quality water entering from the western slopes of the Sierra Nevada, that, with the exception of the previously mentioned mine drainage, no serious impairment has been evident so far at any of the Sacramento River sampling points. However,

<sup>\* &</sup>quot;Report to State Water Pollution Control Board on Control of Pollution of Keswick Reservoir", June 14, 1957, Leeds, Hill, and Jewett, consulting engineers, Los Angeles, California, and "Sacramento River, Keswick Reservoir and Vicinity, Fall 1955 and Spring 1956, Stream Survey Report for the State of California", Academy of Natural Sciences, Philadelphia, Pennsylvania.

effects of using the Sacramento River as a conduit for receiving irrigation return water is readily shown by significant differences in conductivity which appear in a comparison of quality at key stations along the length of the river. Three such key stations are: Station 12c at Bend, which is located above most sources of quality degradation; Station 14 at Knights Landing, below most of the sources of irrigation return flow but above the confluences of the major tributary streams; and Station 15 at Sacramento, which lies at the entrance to the Sacramento-San Joaquin Delta. Table 1 shows variations in the flow and quality of the Sacramento River at these three key stations at two different times during 1957. May 1957 was just prior to full irrigation water use and irrigation drainage to the Sacramento River and July 1957 was the time at which the irrigation season was well under way.

TABLE 1
SACRAMENTO RIVER WATER QUALITY

	:	: May 1957			July 1957.		
Station Location	: Flow cfs)		Conductance (micromhos)	:	Flow <sup>a</sup> (cfs)	:	Conductance (micromhos)
Bend (12c)	29,900	)	106		9,640		120
Knights Landing (14)	17,380	)	117		6,210		209
Sacramento (15)	19,590	)	158		9,780		164

a - Average of mean daily flows.

Conductance reached a peak at Knights Landing because of return irrigation water and then decreased at Sacramento, reflecting the inflow of the Feather and American Rivers. The same condition, to approximately the same degree, has been noted each year since the program was initiated in April 1951.

Variations in the quality of the <u>McCloud River</u> above Shasta Lake (Station 18) have been slight since sampling began in April 1951. However, the highest conductivity for the period of record, 150 micromhos, occurred in June 1957. The water was calcium bicarbonate in character and suitable for nearly all uses.

Water samples were collected from Pit River near Canby (Station 17a) and near the community of Montgomery Creek (Station 17). The concentrations of mineral constituents at Montgomery Creek have varied only slightly since sampling began in April 1951, while at Canby, where conductivity ranged between 150 and 253 micromhos during 1957, the concentrations were slightly lower during 1956 and 1957 as compared to previous years of record. With the exception of chlorides and magnesium, the concentrations of all constituents decreased between the upstream station at Canby and the downstream station at Montgomery Creek. This drop in salt concentration between the upper and lower station was probably caused by the introduction of waters from tributaries which enter the Pit River between the two stations. A decrease in turbidity, which occurred between the two stations, was attributed to the settling of suspended solids on the flat hydraulic gradient in Big and Fall River Valleys.

Surface water samples collected from <u>Burney Creek near Burney</u> (Station 17c) have shown no appreciable variation in quality since the initiation of the program in April 1951. The total dissolved solids concentrations were less than 100 ppm in 1957 (Plate B-22).

Maximum concentrations of many dissolved constituents in Cottonwood Creek near Cottonwood (Station 12b) during 1957 were noted in February. Total dissolved solids were approximately 190 ppm (Plate B-27), sodium 15 ppm, chlorides 22 ppm, and total hardness 124 ppm. These values do not represent a significant deviation from concentrations found since April 1951. The water remained bicarbonate type with calcium and magnesium as major cations and suitable for most uses.

Variations in the quality of Mill Creek near Los Molinos (Station 88) have been slight since this station was added to the program in April 1952. During 1957, the water was calcium-sodium bicarbonate in character with conductivity values ranging between 100 and 213 micromhos. The water has been suitable for most uses except that boron has often been present in high enough concentrations to place it in class 2 for irrigation. The maximum boron concentration for 1957 was 0.56 ppm, reported in January.

Samples of water were collected from <u>Deer Creek</u> near Vina (Station 95). This water was bicarbonate type with no major cation, class 1 for irrigation, and met drinking water standards for mineral content. No significant changes in quality have occurred in this creek since sampling was initiated in August 1952. In 1957, the total dissolved solids ranged from a low of 60 ppm in March to a high of 192 ppm in September (Plate B-27).

Surface water samples from <u>Big Chico Creek</u> near Chico (Station 85), showed no noticeable change in water quality since sampling began in July 1952. The water continued to be bicarbonate type, class 1 for irrigation and met drinking water standards for mineral content. Total dissolved solids have ranged between 40 and 240 ppm for the period of record and reached a maximum concentration of approximately 150 ppm during 1957 (Plate B-21).

There have been no significant variations in concentrations of constituents in <u>Butte Creek</u> near Chico (Station 84) since the beginning of

sampling in July 1952. It was a calcium bicarbonate type water, class 1 for irrigation, and met drinking water standards for mineral content.

Total dissolved solids have varied between 35 and 95 ppm for the period of record and between 45 and 85 ppm during 1957 (Plate B-22).

Samples of water were collected from the <u>Feather River</u> near Oroville (Station 19), and at Nicolaus (Station 20). At Station 19, the concentration of total dissolved solids ranged between 45 and 80 ppm in 1957 (Plate B-30) and the concentrations of all other constituents were correspondingly low. There was practically no salt pickup between the upstream station near Oroville and the station at Nicolaus. There was only minor seasonal variations in quality and there have been no appreciable changes in the quality of the water since the beginning of the program in April 1951.

Indian Creek, sampled near Crescent Mills (Station 17d), is an important tributary of the Feather River and joins it upstream of the station near Oroville (Station 19). This water was calcium bicarbonate in character, of excellent quality and suitable for nearly all uses. No significant variation in concentration of constituents has been detected at this station since sampling began in April 1951. Total dissolved solids ranged between 68 and 180 ppm, reaching the maximum in August 1957 (Plate B-30).

Samples of water collected from South Honcut Creek near Bangor (Station 90) showed total dissolved solids ranging from 75 to 210 ppm during 1957 (Plate B-50), and no significant change from values reported since July 1952.

Total dissolved solids ranged between 35 and 90 ppm (Plate B-54 and 55) in water samples collected from Yuba River near Smartville (Station 21) and at Marysville (Station 21). The water continued to be calcium

bicarbonate in character and suitable for nearly all uses. There was no appreciable variation in concentration of constituents between the upstream and downstream stations and fluctuations in quality have been slight since sampling began in April 1951.

Water samples collected from <u>Bear River</u> near Wheatland (Station 78) during 1957 indicate no appreciable changes in quality since December 1951 with the exception of seasonal fluctuations. The water was calcium bicarbonate in character, class 1 for irrigation, and within drinking water standards for mineral content. During 1957, total dissolved solids ranged between 45 and 190 ppm (Plate B-21).

The flow of Sacramento Slough, which was sampled near Knights
Landing (Station 14a), is made up almost entirely of irrigation drainage
and return flows, and effluent ground waters which enter the slough during
the irrigation season. During periods of heavy rainfall, its flow consists
of storm runoff. When water is flowing in Sutter Bypass, the slough is
submerged. During 1957, the quality pattern at this station was comparable
to previous years of record. In 1957, the highest concentration of
dissolved salts occurred in February, reaching 312 ppm. After a low of
80 ppm in March, the concentration climbed to 275 in July (Plate B-45).
The maximum concentration of dissolved minerals during February resulted from
the low flow in the river.

During 1957, surface water samples were collected from the American River at Nimbus Dam (Station 22a), at Fair Oaks (Station 22d), and at Sacramento (Station 22). There was no appreciable variation in water quality from 1955 through 1957. The water in the American River was calcium bicarbonate in character and of excellent quality, with total dissolved

solids at Station 22 ranging between 35 and 50 ppm during 1957 (Plate B-20). This narrow range reflects the absence of sources of degradation and the stabilizing effect of Folsom Dam on quality fluctuations. During 1954, prior to the construction of Folsom Dam, total dissolved solids ranged between 21 and 74 ppm. While waste discharges have not as yet had any apparent effect on the quality of this water, increased development in the area between Folsom Dam and Sacramento could have a detrimental effect on water quality in the future, particularly from a sanitary standpoint.

Surface water samples were collected from Stony Creek near
Hamilton City (Station 13a) during 1957. This water was calcium-magnesium
bicarbonate in character, with concentration of constituents below the
limits for all but the most exacting uses. Conductivity ranged between
260 and 396 micromhos during 1957, reflecting no significant change in
the concentration of constituents of this water since the initiation of
the monitoring program in April 1951.

The water in Colusa Trough, which is made up of surface runoff and irrigation return flow from the Colusa Basin, was sampled near Colusa (Station 87). Since sampling began in July 1952, analyses have shown this water to be sodium bicarbonate in character and moderately to very hard. Usually during the winter and early spring months the concentrations of total dissolved solids qualitatively place this water in class 2 for irrigation. During the balance of the year, the water in Colusa Trough is class 1. The ranges of hardness and total dissolved solids (Plate B-26) in 1957 were 96 to 356 ppm and 212 to 820 ppm, respectively.

Clear Lake water samples were collected near Clearlake Oaks

(Station 40) and at Lakeport (Station 41). No appreciable difference in

mineral quality between the two stations has been detected. Conductivity

ranged between 238 and 281 micromhos during 1957, representing no significant change from values found since April 1951. Clear Lake is usually calcium-magnesium bicarbonate and class 2 irrigation water because of the high boron concentrations which varied between 0.67 and 0.91 ppm in 1957. The Clear Lake region has been long recognized as a boron area and the relatively high boron concentrations found in the lake are attributed to the many highly mineralized springs in the area.

Cache Creek, which contains the outflow from Clear Lake, was sampled near Lower Lake (Station 42) and about 40 miles downstream near Capay (Station 80). The water in Cache Creek near Lower Lake was essentially the same in character and quality as in Clear Lake. Concentrations of most constituents changed markedly, however, between Station 42 and Station 80. In February 1957, conductivity increased from 311 to 968 micromhos, chlorides increased from 12 to 145 ppm, and boron concentrations increased from 0.80 to 5.00 ppm between the upper and lower stations. Because of the high boron concentration in Cache Creek, the water was usually class 2 for irrigation at the upstream station and often class 3 at the downstream station.

The increase in constituents between Stations 42 and 80 on Cache Creek has occurred annually since the inception of the sampling program in April 1951 and is directly related to the sources of the flow in Cache Creek. The quality of Cache Creek at Capay results from the mixing of Clear Lake water, and tributary flows which enter Cache Creek between the two stations. When the flow in Cache Creek at Lower Lake is quite low, the quality at Capay reflects the water draining an area having numerous mineralized springs. A major contributor of mineralized water, North Fork of Cache Creek is discussed next.

Cache Creek, North Fork, which enters the main stem about eight miles below Lower Lake, was sampled near Lower Lake (Station 79). This water accounts for some of the increase in concentrations of constituents in the main stem between Lower Lake and Capay. In the North Fork, concentrations of dissolved salts were generally higher than in the main stem. Conductivity ranged between 181 and 563 micromhos in the North Fork during 1957, indicating a slight improvement in quality over previous years since the station was added to the program in December 1951. Relatively high boron concentrations, which ranged from 0.53 to 4.8 ppm during 1957, are characteristic of this stream.

In general, concentrations of constituents in <u>Putah Creek</u> near
Winters (Station 81) were significantly lower during 1957 than have
previously been reported since sampling began in December 1951. Conductivity,
which was reported as 261 micromhos in September 1957 as compared to 789
micromhos in September 1955, is illustrative of the improvement in quality.
Boron, which reached a maximum concentration of 0.57 ppm in January 1957,
occasionally causes this water to be class 2 for irrigation. However, it
was well within the limits for class 1 irrigation water during most of
the year. This water is generally suitable for nearly all uses and
consistently meets drinking water standards for mineral content.

Lindsey Slough was sampled near Rio Vista (Station 110). While concentrations of most constituents in this water were lower in 1957 than have been reported since September 1952, no cycle or definite trend is indicated. The water remained calcium-magnesium bicarbonate in character with conductivity ranging between 165 and 253 micromhos during 1957 as compared to a range of 164 to 377 micromhos during 1956.

The waters of <u>Cache Slough</u> below Lindsey Slough (Station 110a) were similar to the waters of Lindsey Slough both in character and in concentration of mineral constituents. The conductivity of this water ranged between 110 and 180 micromhos during 1957.

### San Joaquin River Valley (5b)

The San Joaquin River originates in the Sierra Nevada on the east side of the San Joaquin Valley. It flows in a westerly direction until it reaches the trough of the valley, then turns north and flows approximately 150 miles to the Sacramento-San Joaquin Delta. Friant Dam, which stores water in the foothills, supplies the Friant-Kern and Madera Canals. During the irrigation season water imported from the Delta enters the San Joaquin River at the Mendota Pool through the Delta-Mendota Canal, which at times provides the entire water supply in the reach of the river between Mendota Pool and Fremont Ford Bridge. The diversions below the Mendota Pool are so great that during the irrigation season the river usually goes dry by the time it reaches Dos Palos about 25 miles downstream. Near Fremont Ford, just above the point where the Merced River enters the San Joaquin River, the water in the San Joaquin River consists almost entirely of irrigation return flow. Below this point, the quality in the river is dependent upon the relative volumes of irrigation return water and diluting water from the Merced, Tuolumne and Stanislaus Rivers. Below the confluence with the Stanislaus River, the San Joaquin River enters the Delta area.

During 1957, surface water samples were collected from 21 points on the San Joaquin River (Plate 1):

at Friant (Station 24) near Grayson (Station 26) near Biola (Station 24a) at West Stanislaus Irrigation District (Station 27b) at Whitehouse (Station 24b) at Maze Road Bridge (Station 26a) near Memiota (Station 25) near Vernalis (Station 27) near Dos Palos (Station 25a) at Mossdale Bridge (Station 102) above Salt Slough (Station 111b) at Brandt Bridge (Station 101a) at Fremont Ford Bridge at Garwood Bridge (Station 101) (Station 25c) above Merced River (Station 30a) at San Andreas Landing (Station 112b) at Jersey Point (Station 28b) at Hills Ferry Bridge (Station 25b) at Antioch (Station 28) at Crows Landing Bridge (Station 26b) at Patterson Water Company (Station 27a)

Upstream from the Sacramento-San Joaquin Delta, the San Joaquin River is comprised of two distinctly different waters. Above the Mendota Pool, the river contains native San Joaquin water. In the reach between the Mendota Pool near Mendota (Station 25) and Vernalis (Station 27), the river contains a mixture of large quantities of irrigation return flows, effluent ground waters, and waters from Merced, Stanislaus, and Tuolumne Rivers. Downstream from Vernalis the San Joaquin River enters the Sacramento-San Joaquin Delta complex.

The quality of the San Joaquin River upstream from Mendota Pool has not changed appreciably since the inception of the surface water quality monitoring program in April 1951. The conductivity of water at Friant Dam ranged between 33.2 and 47.8 micromhos during 1957.

The concentrations of most constituents in the San Joaquin River between Mendota Pool and Vernalis have gradually increased since 1951.

Seasonal fluctuations in quality in this reach have been significant in past years and are dependent to a large extent on the respective quantities of flow in the tributary streams and drainage canals. During 1957, the conductivity in this reach of the river ranged between 73.9 micromhos near Mendota (Station 25) and 6,166 micromhos above Salt Slough (Station 111b). The dilution effect of the Merced, Tuolumne, and Stanislaus Rivers was evidenced by the decrease in concentration of constituents immediately below the confluence of the streams. This effect is shown by Table 2 which lists flow, conductivity, and chlorides at 12 stations in this reach of the river for January and July 1957. The Merced River is tributary to the San Joaquin River between Stations 30a and 25b, the Tuolumne River between Stations 27b and 26a, and the Stanislaus River between Stations 26a and 27.

Downstream from Vernalis, the quality of the San Joaquin River is primarily dependent on the export draft of the Tracy and Contra Costa (CVP) pumping plants and the interrelationship between sea water and the quantity of fresh water outflow from the Sacramento-San Joaquin Delta.

During 1957, samples of water were collected from Salt Slough at San Luis Ranch (Station 92a). The waters of this slough consisted of mixture of effluent ground water, irrigation return water, and runoff. The historical data indicates that the quality of this water changes greatly from the winter months when most of the water is effluent ground water, to the summer months, when irrigation return flows are at the peak. As an example, the conductivity of water from Salt Slough decreased from 2,196 micromhos in January to 766 micromhos in July with the introduction of return flows and again increased to 2,000 micromhos in November.

TABLE 2

SAN JOAQUIN RIVER WATER QUALITY

	: January 1957 :			July 1957			
Station Location					Conductance: (micromhos):	Chlorides (ppm)	
Mendota (25)	а	73.9	6.7	a	411	61	
Dos Palos (25a)	a	208	24	a	371	47	
Salt Slough (111b)	a	399	40	a	724	106	
Fremont Ford Bridge (25c)	510p	1,646 <sup>c</sup>	301 <sup>e</sup>	163 <sup>b</sup>	998 <sup>c</sup>	174 <sup>c</sup>	
Merced River (30a)	a	1,420	213	a	1,269	221	
Hills Ferry Bridge (25b)	8.	1,373	213	a	1,076	184	
Crows Landing Bridge (26b)	a	1,170	158	a	909	143	
Patterson Water Company (27a)	8.	1,072	151	8.	1,011	159	
Grayson (26)	608ª	1,150	191	450 <sup>d</sup>	971	159	
West Stanislaus Irri- gation District (27b)	a	1,060	168	a	994	154	
Maze Road Bridge (26a)	1,490 <sup>d</sup>	747	142	760 <sup>d</sup>	930	172	
Vernalis (27)	1,900 <sup>d</sup>	645	112	870 <sup>d</sup>	845	154	

a - Flow not available.

b - Average mean daily flow.

c - Average for month.

d - Instantaneous flow.

There was a gradual increase in concentration of constituents in <a href="Bear Creek">Bear Creek</a> near Stevinson (Station 111) between 1951 and 1954, as illustrated by total dissolved solids which reached a maximum of approximately 1,950 ppm in August 1954 and declined sharply to approximately 70 ppm in January 1955 (Plate B-20). Early in 1957, the total dissolved solids again increased, reaching approximately 533 ppm in April. The water has often been class 2 for irrigation because of percent sodium, which reached 66 percent during 1957, and 68 percent in 1956.

Samples of water collected from Merced River below Exchequer Dam (Station 32a) and near Stevinson (Station 32) during 1957 indicated concentrations of most constituents somewhat below those for the 1955-56 reporting period, but closely comparing with values reported between April 1951 and 1955. The water was calcium bicarbonate in character at Station 32a but changed to sodium-calcium bicarbonate at Station 32. The concentration of constituents at both stations were within the limits for class 1 irrigation water and suggested standards for drinking water. The 1957 maximum total dissolved solids concentration of 196 ppm, as derived by means of conductivity vs. total dissolved solids curves, occurred in November (Plates B-35 and B-36). Concentrations increased somewhat between the upstream and downstream stations but the increase was not uniform.

Surface water samples were collected from <u>Tuolumne River</u> below

Don Pedro Dam (Station 31a), at Hickman-Waterford Bridge (Station 30),

and at Tuolumne City (Station 31). Changes in quality between Stations 31a

and 30 and between Stations 30 and 31 were very evident, especially during

periods of low flow. Table 3 shows variations in the flow and quality

during March and September 1957. The March values occurred during a period

of relatively high flow while the September values occurred during a

period of low flow.

TABLE 3
TUOLUMNE RIVER WATER QUALITY

	: March 1957			: September 1957			
Station Location				ow <sup>a</sup> :Conductance:Chlorides fs):(micromhos): (ppm)			
Don Pedro Dam (31a)	3,160	45.0	1.0	1,460	23.4	0.0	
Hickman-Waterford Bridge (30)	2,350	57.2	3.7	114	534	106	
Tuolumne City (31)	1,830	114	20	360	<b>7</b> 53	153	

#### a - Instantaneous flow.

Some of the salt pickup in this water can be attributed to waste discharges from Modesto, possibly from small communities above Modesto, and irrigation return flows from the Waterford and Modesto Irrigation Districts. It is possible that saline connate brines rise to the surface under artesian conditions and flow into the Tuolumne River. Investigations have ascertained that the unrestricted flow of saline brines from natural gas wells, which are located on the river bank near Modesto and near Waterford, are contributing considerable amounts of salts to the river. The combined flow from all of the wells has been estimated at approximately 10 cfs. Chloride concentrations in the wells range up to about 10,000 ppm. Table 3 shows that, while these salts had little effect on the quality of the Tuolumne River when the flow was high, the effect was pronounced when the flow in the river was low. Chloride concentrations were often as high as 100 ppm at Hickman-Waterford Bridge when the flow in the river was below 200 cfs. At Tuolumne City, about 28 miles further downstream, the chlorides were often in excess of 150 ppm when the flow was below 400 cfs. Due to this effect, the quality of Tuolumne River water during periods of low flow was such

as to place it in class 2 for irrigation. The quality of the Tuolumne River has not changed greatly since the start of the sampling program in April 1951.

During 1957, samples were collected from Stanislaus River below
Tulloch Dam (Station 29a), and near the mouth (Station 29). No significant
changes in the quality of this water have been detected since April 1951.

It was usually calcium bicarbonate in character and consistently within the
limits for mineral content in drinking water standards and class 1 irrigation
requirements. There was evidence of salt pickup from the upper to the
lower station. Total dissolved solids (Plate B-51) increased from 41 ppm
below Tulloch Dam to 171 ppm near the mouth in September 1957, a pickup
of 130 ppm. The increase of other constituents was comparable. This
salt pickup was probably due to the irrigation return flows discharged to
the river.

Water samples collected in 1957 from the <u>Calaveras River</u> at Jenny Lind (Station 16a) indicate a water of calcium bicarbonate character and excellent mineral quality. There have been no appreciable variations in concentration of constituents since this station was added to the program in June 1951. During 1957, conductivity ranged between 170 and 292 micromhos.

Samples of water were collected from Mokelumne River near Lancha Plana (Station 23a), at Woodbridge (Station 23), below Cosumnes River (Station 23b) and below Georgiana Slough (Station 23c). Concentrations of mineral constituents in this stream were generally less during 1956 and 1957 than corresponding months of previous years. There was no appreciable change in quality between the upstream and downstream stations. Conductivity

in 1957 ranged between 32.9 and 46 micromhos at the upstream station near Lancha Plana and between 38.8 and 71.2 micromhos at the downstream station at Woodbridge. Although it is known that occasionally discharges of wastes containing heavy metals in high concentrations from the Penn Mine enter the Mokelumne River upstream from Station 23a, the heavy metal analyses made during 1957 showed concentrations well below toxic values for fish life.

Cosumnes River was sampled near Michigan Bar (Station 94). This water was of excellent quality, class 1 for irrigation, and below the limits of mineral content for drinking water. Conductivity during 1957 ranged between 55 and 107 micromhos. The variation in concentration of constituents since sampling was initiated in July 1952 has been slight.

## Sacramento-San Joaquin Delta (5c)

Surface water sampling stations have been established on 11 major waterways in the Sacramento-San Joaquin Delta to monitor quality changes in this area. These waterways, in order of discussion, are:

Delta-Mendota Canal Old River Italian Slough Indian Slough Rock Slough Dutch Slough

False River Stockton Ship Channel Little Potato Slough Contra Costa Canal Delta Cross Channel

Water samples were collected from <u>Delta-Mendota Canal</u> near Tracy (Station 93) and near Mendota (Station 92). While the concentrations of most constituents during 1957 were slightly below those found in 1955 and 1956 at these stations, examination of the analyses of samples collected since July 1952 indicates no evidence of a general trend in quality change. During 1957, the water was class 1 for irrigation and met drinking water standards for mineral content. Conductance ranged from 158 micromhos to 930 micromhos.

During 1957, surface water samples were collected from Old River near Tracy (Station 103), at Clifton Court Ferry (Station 104), at Orwood Bridge (Station 108), at Holland Tract (Station 108a), and at Mandeville Island (Station 112). Little change in quality of this water has been noted since sampling began in September 1952. During January, February and March of 1957, concentrations of most constituents in the samples collected at Stations 104, 108, and 112 were higher than were found during the remainder of the year. Conductance reached 877 micromhos in March at Station 108 and was comparable at the other two stations. The mineral concentrations at Station 103 did not change appreciably during 1957 with conductance reaching a maximum of 1,040 micromhos in April.

Conductivity of Italian Slough near the mouth (Station 106) reached a maximum of 833 micromhos in February 1957. Each year since sampling began in September 1952, the concentration of constituents in this water has increased significantly during the winter months. Since this slough has no natural outlet, the water stands and becomes stagnant during the winter months. In the summer when pumping is resumed, the stagnant water is replaced by fresh water. This effect is not so pronounced in Italian Slough as in Indian Slough because the sampling station is located near the inlet of the slough and some mixing with Old River water occurs. During 1957, Italian Slough was a sodium-calcium bicarbonate type water, class 1 for irrigation use, and met drinking water standards for mineral content.

Indian Slough was sampled near Brentwood (Station 107). Conductivity in this slough reached 1,460 micromhos in March 1957 and boron reached 2.5 ppm in December. The high boron content was probably due to

effluent ground waters in the area. The concentrations of all constituents in Indian Slough decreased to within the class 1 irrigation limits after pumping was resumed. As in Italian Slough, this quality cycle has been detected each year since September 1952.

During 1957, water samples were collected from Rock Slough near Knightsen (Station 109), Dutch Slough at Farrar Park Bridge (Station 108b), False River at Webb Pump (Station 112a), Stockton Ship Channel on Rindge Island (Station 100), Little Potato Slough at Terminous (Station 99), Contra Costa Canal at First Pump Lift (Station 109a), and Delta Cross Channel near Walnut Grove (Station 98). These waters vary in character from sodium-calcium chloride-bicarbonate to calcium-sodium bicarbonate-chloride, and also vary widely in concentration of constituents. The quality depends largely on the relative flows in the streams draining the Sacramento and San Joaquin drainage basins. Conductivity in these waters ranged from a low of 99.7 micromhos in Little Potato Slough to a high of 1,021 micromhos in Contra Costa Canal during 1957. No trend in the quality variations at these stations has been detected during the period of record.

# Tulare Lake Basin (5d)

Surface water samples were collected from the <u>Kern River</u> at the following three stations: near Kernville (Station 36b), below Isabella Dam (Station 36a), and near Bakersfield (Station 36). The waters of this river were calcium bicarbonate to sodium bicarbonate in character and of excellent quality. No significant quality changes have been detected since sampling began in April 1951. The quality at the Kernville and Isabella stations was essentially the same during 1957. The Bakersfield station showed slight increases in maximum dissolved solids over the

other stations. At Bakersfield, the maximum total dissolved solids reached 155 ppm while at the other stations it only reached 109 ppm (Plate B-32).

The <u>Tule River</u> was sampled near Porterville (Station 91) and the <u>Kaweah River</u> near Three Rivers (Station 35). These waters were calcium bicarbonate in character with mineral content within the limits for class 1 irrigation water and drinking water uses. During 1957, conductivity ranged from 157 to 426 micromhos in the Tule River and from 34 to 158 micromhos in the Kaweah River. There have been no appreciable variations in the quality of these waters for the period of record.

There has been little variation in the concentration of most constituents in the <u>Kings River</u> since it was first sampled in April 1951. Samples collected from the three stations; below North Fork (Station 33c), below Pine Flat Dam (Station 33b), and below Peoples Weir (Station 34); indicate a water of calcium bicarbonate character, suitable for most uses and with only minor salt contribution from headwaters to mouth. This is illustrated by the samples collected in June 1957 when the electrical conductivity was reported as 17.6 micromhos below North Fork, 28.8 micromhos below Pine Flat Dam, and 40.3 micromhos below Peoples Weir.

# Lahontan Region (No. 6)

During 1957, surface water samples were collected from eight monitoring stations (Plate 1), as indicated in the following tabulation:

Susan River (1) Truckee River (2)
Lake Tahoe (3) Mojave River (2)

The surface waters of this region are bicarbonate in type with calcium as the major cation. The quality of these waters has displayed remarkable stability in that there has been little seasonal and yearly

variation in concentration of constituents since sampling was initiated in April 1951. With the exception of Mojave River, hardness and total dissolved solids were both less than 100 ppm in 1957. Monthly variations in total dissolved solids at seven stations that have a period of record of five years (1953-1957) are presented graphically on Plates B-56 through B-59 of Appendix B.

During 1957 the water of <u>Susan River</u> at Susanville (Station 17b) was of excellent quality and suitable for most uses. It was calcium bicarbonate in character and contained total dissolved solids ranging between 45 and 140 ppm during 1957 (Plate B-58). There has been no appreciable variation in quality since sampling began at this station in April 1951.

Lake Tahoe samples of water were collected at Bijou (Station 39), at Tahoe City (Station 38), and at Tahoe Vista (Station 37). The water of this lake was calcium bicarbonate in character, of excellent mineral quality and suitable for most uses. Conductivity in the lake ranged between 68 and 104 micromhos during 1957, with no appreciable variation between stations. There have been no significant changes in the quality of this water since sampling began in April 1951.

During 1957 there was no appreciable change in quality of the Truckee River between the upstream station near Truckee (Station 52) and the downstream station near Farad (Station 53). It was a bicarbonate type water with calcium as predominant cation. Conductivity ranged between 55 and 106 micromhos during 1957. Quality variations have been insignificant on the Truckee River since the beginning of the program in April 1951.

Mojave River was sampled near Victorville (Station 67) and at The Forks (Station 67a). Station 67a was added to the stream sampling program to monitor the upper reaches of Mojave River. The new station was established in June 1957, and is located immediately below the confluence of the West Fork of Mojave River and Deep Creek.

During summer months, surface flow in the West Fork usually ceases, and Deep Creek remains as the source of surface flow in the Mojave River. For the greater part of the year 1957, surface flow infiltrated into the river sands below Victorville. In years when runoff is above normal, surface flow is continuous from the Forks to beyond Victorville, and at times even to Soda Dry Lake near Baker.

Comparison of analyses of samples from the two stations showed that the water at the Forks was of better quality than the water at Victorville. Conductivity ranged between 387 and 492 micromhos at Station 67 and between 250 and 548 micromhos at Station 67a. The character of the water at both stations was bicarbonate in type, with calcium and sodium the predominant cations.

Waters at both stations were suitable for most beneficial uses, met drinking water standards for mineral content and were class 1 for irrigation. Analyses obtained at Station 67 since the initiation of the stream sampling program in 1951, show that the quality of the water has changed very little.

The City of Victorville discharges sewage to oxidation ponds in the vicinity of the Mojave River upstream from Station 67. Little or no effect on the mineral quality of the water has been detected from this operation.

### Colorado River Basin Region (No. 7)

Water samples were collected in the Colorado River Basin in 1957 from 14 surface water monitoring stations (Plate 1), as indicated in the following tabulation:

Alamo River (2)

New River (2)

Colorado River (6)

All American Canal (1)

Whitewater River (2)

Salton Sea (1)

The Colorado River Basin Region of California is a typical desert area of Southern California. The quality of surface waters varies widely due to high content of soluble minerals in the soils, high evaporation rates, and sparse precipitation. The concentrations of most constituents in the Alamo and New Rivers have generally increased since sampling began. No significant change has been detected in the quality of the waters of the other monitored streams in this region. Occasional heavy rains often result in flash floods of short duration. Rain runoff, although high in silt content, is generally of good mineral quality. Except for the Colorado River, natural surface streams in this region are usually dry throughout the year. A graphical presentation of monthly variation in total dissolved solids at six stations that have a period of record of five years (1953-1957) can be found on Plates B-60 through B-62 of Appendix B.

The Alamo and New Rivers, which enter the United States from
Mexico and flow into the Salton Sea, continue to carry irrigation return
water, sewage, and canal spills from the All American Canal and distribution
canals of the Imperial Irrigation District. The New River still presents a
serious water quality problem because of industrial waste and raw sewage
discharges from the City of Mexicali in Mexico. Bacterial counts remained
high. Several raw sewage discharges within the United States into the Alamo
and New Rivers continue to impair the quality of these waters.

Alamo River water, which was sampled at the International Boundary (Station 59) and near Calipatria (Station 60), varied in character from sodium chloride to sodium chloride-sulfate. The water was not of recommended mineral quality for domestic use and was usually class 3 irrigation water. In 1957, the electrical conductivity of samples collected at Station 59 ranged from 3,891 to 6,452 micromhos, while samples at Station 60 ranged from 2,985 to 4,048 micromhos. Boron ranged from 1.00 to 1.98 ppm at Station 59, and from 0.40 to 0.68 ppm at Station 60. A study of available quality records for these stations indicates a gradual increase in dissolved salts since sampling began in April 1951.

New River was sampled at the International Boundary (Station 57) and near Westmorland (Station 58). Comparison of 1957 analyses of samples from these two stations with previously reported analyses of the past six years revealed no significant change in the mineral quality of this water in 1957. The water at both stations remained sodium chloride in character. It was not of recommended quality for domestic use and was class 3 irrigation water. The electrical conductivity of waters sampled during 1957 at Station 57 ranged from 4,405 to 7,462 micromhos and at Station 58 varied from 3,921 to 5,102 micromhos. Boron content of samples from Station 57 ranged from 0.76 to 1.46 ppm, while those from Station 58 varied from 0.76 to 1.10 ppm.

The <u>Colorado River</u> was sampled at the following six points in 1957: near Topock, Arizona (Station 54), at the Metropolitan Water District intake on Lake Havasu (Station 56d), at Parker Dam (Station 55), near Blythe (Station 56c), at Yuma, Arizona (Station 56), and below Morelos Dam at the United States-Mexico border (Station 56b). Water at these stations

was sampled in May and September, except at Lake Havasu, which was sampled monthly by the Metropolitan Water District of Southern California. The predominant cations in Colorado River water were calcium and sodium, and the predominant anion was sulfate. No significant changes in mineral character or quality were detected in samples collected at the Colorado River sampling stations during 1957, when compared with analyses of previous years of record. Colorado River water remained in the "very hard" category with hardness ranging between 350 and 486 ppm. The sulfate content of this water, which reached a maximum of 404 ppm in 1957, usually exceeded the recommended concentration of the United States Public Health Service drinking water standards. The total dissolved solids content of the two samples collected in 1957 at Stations 56 and 56b were reported as 1,016 and 1,023 ppm; and as 1,090 and 1,029 ppm, respectively. These total dissolved solids values exceed the recommended concentration for drinking water and place the water in class 2 for irrigation.

Comparison of analyses showed a significant increase in each of the mineral constituents as the waters moved downstream toward Mexico. This mineral pickup was probably due to reduction of flow through consumptive use, evaporation, and inflow of salts from return irrigation water and waste discharges.

The All American Canal, which was sampled near Pilot Knob (Station 56a), conveys water from the Colorado River at Imperial Dam to the Imperial and Coachella Valleys for irrigation use. The water at this station is usually poorer in mineral quality than the river water at Blythe, but better than the mineral quality of the river water at Yuma. No significant change in quality has been detected during the period of record. All American Canal

water remained class 2 for irrigation use because of excessive electrical conductivity, which reached 1,351 micromhos in May 1957. The sulfate content of this water usually exceeded the recommended standard for drinking water.

Whitewater River was sampled at Whitewater (Station 68) and at Mecca (Station 68b). There has seldom been any flow during the summer months at Station 68. When surface flow diminishes below a certain amount, water is pumped from wells upstream from Station 68 and discharged to the river channel to supplement the natural flow. The entire flow of the river is then diverted and conveyed south to the vicinity of Palm Springs. During 1957, surface water at Station 68 was calcium bicarbonate in character and ranged from moderately hard to very hard. Conductivity at this station ranged between 405 and 483 micromhos. It was class 1 irrigation water, and met drinking water standards for mineral content. Comparison of 1957 analyses of samples from Station 68 with those of prior years showed no significant change in mineral quality.

In July 1957, the station on the Whitewater River at Mecca (Station 68b) was added to the surface water quality monitoring program to monitor the drainage and storm runoff from Coachella Valley. The most accessible site on the Whitewater River near its outlet to the Salton Sea was selected for this station. Except during infrequent periods of heavy precipitation, flow in the Whitewater River extends northwesterly from its outlet only to the vicinity of Indio. This flow consists chiefly of irrigation return and drainage wastes. The water at this station was class 3 irrigation water during 1957, and did not meet drinking water

in character and was extremely hard. The total dissolved solids content of this water usually exceeded 2,000 ppm and reached approximately 2,800 ppm in December 1957. Sulfates, also characteristically high in this water, were reported as 777 ppm in September 1957. A portion of the treated sewage from the City of Indio is discharged to the Whitewater River approximately 16 miles above this station.

Salton Sea was sampled near the north end at Salton Sea State

Park (Station 68a). Salton Sea is situated between Coachella and Imperial

Valleys. It receives the waste, surface, and drainage waters of these

valleys. During 1956 and 1957, the surface elevation of Salton Sea

appeared to be stabilizing following an extensive period of rise. Evaporation from its surface is approximately six feet of water annually.

Salton Sea water contained about 34,300 ppm total dissolved solids in 1957. This water was sodium chloride in character and similar to ocean water. However, its calcium and sulfate contents were greater, and chloride content was less than that of ocean water. No significant change in the mineral quality of Salton Sea water was discernible during 1957, but increases in salt content can be anticipated in the future. The 1957 quality of this water was not appreciably different from previous years of record.

# Santa Ana Region (No. 8)

During 1957, samples were collected at eight surface water monitoring stations in the Santa Ana Region (Plate 1), as indicated by the following tabulation:

Santa Ana River (4) Chino Creek (1) Warm Creek (2)

Lake Elsinore (1)

Runoff from this region during 1957 was less than 50 percent of the long-time mean annual runoff. During 1957, conductivity ranged between 208 micromhos in Santa Ana River near Mentone (Station 51b) and 35,399 micromhos in Lake Elsinore near Elsinore (Station 89). Little or no deterioration in quality of water was noted in comparing 1957 analyses with those of earlier years. The quality of surface water improves noticeably in periods of high flow, when better quality rain runoff contributes to the normal flow.

Monthly variations in total dissolved solids at seven stations that have a period of record of five years (1953-1957) are presented graphically on Plates B-63 through B-65 of Appendix B. Lake Elsinore (Station 89) is not presented in this fashion because of a long period of dryness in the lake.

The Santa Ana River was sampled at the following four stations: at Mentone (Station 51b), at Riverside above both the Metropolitan Water District blowoff and Riverside sewage treatment plant (Station 51d), at Norco (Station 5le), and near Prado Dam (Station 5la).

Santa Ana River water quality showed a slight improvement in 1957 over previous years since 1951 when sampling was initiated, principally because no Colorado River water was discharged into the natural stream flow from the Metropolitan Water District blowoff near Arlington. Since October 1956, deliveries of raw Colorado River water to Orange County have been made to Santiago Reservoir or discharged to Santa Ana River, which are about six miles below Prado Dam (Station 51a).

In 1957, the character of water in the Santa Ana River varied from calcium bicarbonate above Riverside to generally calcium-sodium bicarbonate-chloride at and below Norco.

Surface water near Mentone (Station 51b) continued to be class 1 irrigation water and met drinking water standards for mineral content. The water ranged from soft to moderately hard, with the maximum being 101 ppm in September 1957. The character was generally calcium bicarbonate with magnesium and sodium as secondary cations. Total dissolved solids at this station did not exceed 200 ppm during 1957 (Plate B-63). The quality of the water at this station was excellent and showed little effect from the recreational developments in the headwater drainage area above this station.

Water in the Santa Ana River at Riverside (Station 51d) showed increases in mineral constituents in 1957 over the previous six-year averages. Total dissolved solids content ranged between 565 and 760 ppm (Plate B-64) and hardness ranged from 278 to 365 ppm. The water was calcium bicarbonate in character. Although the water at this station has usually been class 1 or 2 irrigation water, based primarily upon total dissolved solids, it has met drinking water standards for mineral content. Warm Creek tributary inflow, which carries some sewage treatment plant effluent, discharges to the Santa Ana River channel above this station, and there are some irrigation return water discharges upstream from this station. These waste waters were the probable cause of the increase in mineral content of the water at this station over that at Mentone.

Santa Ana River at Norco (Station 51e) has shown a slight improvement of water quality since its addition to the program in September 1955.

The water was calcium-sodium bicarbonate-chloride in character and very hard.

Electrical conductivity, which reached a maximum of 1,115 micromhos in 1957, placed this water in class 2 for irrigation, though all other factors indicated it to be suited for most crops. The water samples collected at this station in 1957 met drinking water standards for mineral constituents. Effluent from the City of Riverside's sewage treatment plant, although normally conveyed downstream for irrigation use, was on rare occasions discharged to the river above this station.

Samples of water taken from Santa Ana River near Prado Dam (Station 51a) in 1957, showed a slight improvement in water quality over previous years since 1951. The character of the water was calcium-sodium bicarbonate-chloride, with temporary variations in prominence of anion constituents. The water was very hard, and was class 1 irrigation water except at times electrical conductivity, with a maximum of 1,038 micromhos in 1957 slightly exceeded the standard limit for this class. Although mandatory drinking water standards for mineral content were met, total dissolved solids which ranged from 506 to 686 ppm (Plate B-64) exceeded the nonmandatory (desirable) limit of 500 ppm. The City of Chino sewage treatment plant discharges its effluent waste to Chino Creek, which is tributary to Santa Ana River above Prado Dam. There was little change in mineral content between Station 51e, at Norco, and Station 51a.

Warm Creek was sampled at two points: at San Bernandino (Station 50c), and at Colton (Station 50b).

Warm Creek at San Bernandino (Station 50c), upstream from the San Bernardino sewage treatment plant, is sampled to monitor the natural flow of the creek. Virtually all natural flows were diverted below Station 50c into Meeks and Daley Canal, to be used for irrigation during 1957.

The quality of natural flow has remained about the same since 1954, when a general increase in the concentration of most constituents over previous years was noted. The water was generally calcium bicarbonate in character and varied from soft to very hard in 1957. Total dissolved solids ranged between 296 and 453 ppm (Plate B-65). It was class 1 irrigation water and met drinking water standards for mineral content.

Warm Creek at Colton (Station 50b) is sampled to monitor the effect of San Bernardino sewage treatment plant effluent on surface water quality in Warm Creek. The sewage effluent was formerly diverted into Riverside Canal for irrigation use; however, in 1957, it flowed to the Santa Ana River. There was no apparent change in mineral quality in 1957 from previous years. Its character was generally sodium-calcium bicarbonate-chloride. Total dissolved solids ranged between 374 and 584 ppm during 1957 (Plate B-65). The water was class 1 irrigation water and met drinking water standards for mineral constituents. The water was moderately hard to very hard.

Chino Creek near Chino, at Pine Avenue (Station 86) is sampled to monitor the effects of the effluent wastes of Chino sewage treatment plant. During 1957, the flow at this station consisted chiefly of this effluent except during periods of rain runoff. Analyses of samples taken at this station in 1957 indicated no significant change in quality from previous years. The water remained calcium-sodium bicarbonate in character and was very hard. It was usually class 1 irrigation water, although at times electrical conductivity, which was 1,006 micromhos in April 1957, slightly exceeded the upper limit of class 1.

Lake Elsinore near Elsinore, at north shore, (Station 89) was dry for 11 months prior to the time of sampling in February and March 1957. Rains of January and February 1957 left a thin layer of water on the lake bottom. Total dissolved solids exceeded 20,000 ppm in the two samples collected in 1957. The quality of water in this lake has been quite variable during the period of record. However, in all cases it has been found to be class 3 irrigation water.

# San Diego Region (No. 9)

During 1957, samples were collected from six of the seven sampling stations in the San Diego Region (Plate 1). One sampling station was dry throughout 1957. These sampling points are indicated in the following tabulation:

Santa Margarita River (1)
San Luis Rey River (1)
Escondido Creek (1)
San Dieguito River (1)

San Dieguito River (1)

During 1957, drouth conditions prevailed throughout the San Diego Region. Eleven reservoirs of the City of San Diego held only 14.5 percent of their storage capacity on October 1, 1957. The Metropolitan Water District imported Colorado River water at about the maximum rated capacity of the two existing conduits. Construction of a third barrel was authorized in early 1957.

Monthly variations in total dissolved solids for four stations that have a period of record of five years (1953-1957) are presented graphically on Plates B-66 and B-67 of Appendix B. These graphs are not presented for the stations on the San Dieguito and Tia Juana Rivers because of extensive periods of no flow.

Samples collected from Santa Margarita River near Fallbrook (Station 51c) in 1957 showed that the water continued to be sodium bicarbonate-chloride in character and very hard. It was class 2 for irrigation use during 1957 with conductivity ranging between 1,226 and 1,592 micromhos. It met drinking water standards for mineral content, except at times when chlorides, which ranged between 148 and 274 ppm, exceeded the recommended limit. Water quality at this station in 1957 showed a slight improvement over that of the previously reported period (1955-1956), but the concentration of most constituents remained higher than the period 1951 through 1954. Santa Margarita River had a year-round surface flow, but summer discharges were very small.

San Luis Rey River was sampled near Pala (Station 62). This sampling point is at a diversion dam which at times of flow diverts the entire flow in the river. The analyses of samples collected at this station in 1957 show a calcium-sodium bicarbonate-chloride type water which was very hard and, in general, comparable in quality to that found in previous years of record. Conductivity ranged between 641 and 762 micromhos during 1957. It was class 1 irrigation water and met drinking water standards for mineral content. Due to drought conditions prevailing in 1957, the river was dry in September and October for the first time since the establishment of the statewide stream sampling program in 1951.

The flow of Escondido Creek near Harmony Grove (Station 63) usually consists of City of Escondido sewage treatment plant effluent and, at times, stone quarry cooling water containing cutting waste. In 1957, a small earth dam 200 yards downstream from this station remained in place throughout the year and stored runoff. Ponded waters at times during 1957

extended upstream beyond the station. During these periods, water samples were collected from the area of the pond effected by the inflow. The creek did not dry up during the summer of 1957 as it has in previous years. The concentrations of most constituents in this water during 1957 were slightly lower than values reported in 1956, but were about the same as those reported during previous years of record. Water at Station 63 was sodium chloride-sulfate in character and was very hard. It was class 2 irrigation water during 1957 due to conductivity which ranged between 1,218 and 2,247 micromhos and chlrodes which ranged between 173 and 353 ppm. The chloride concentrations at this point usually exceeded both the class 1 irrigation limit and the recommended limit for drinking water.

San Dieguito River below San Pasqual Valley (Station 64) was dry during 1957, continuing a condition which has existed since June 1954, when it was last sampled.

San Diego River was sampled at Old Mission Dam (Station 65).

In February and March 1957, San Diego River carried storm water runoff.

During the remainder of the year, water was ponded above and below the dam, and samples were collected from the downstream pond.

Analyses of 1957 samples show that the character of the water continued to be sodium chloride and that the water was very hard. Conductivity ranged between 2,137 and 4,098 micromhos and chlorides ranged between 408 and 1,060 ppm. It was class 2 irrigation water and usually exceeded recommended limits for total dissolved solids and chloride concentrations in drinking water. The concentrations of most constituents in this water in 1956 and 1957 were about the same and indicate a general degradation of the quality found since April 1951.

Forester Creek at Mission Gorge Road (Station 65a), in San
Diego River Valley, was established in June 1957, to monitor the quality
of runoff from El Cajon Valley. The City of El Cajon discharges its
sewage plant effluent to this creek channel. It flows in a northerly
direction to the San Diego River channel.

Analyses of 1957 samples show the creek water at Station 65a to be sodium chloride-sulfate in character and very hard. It was usually class 2 or 3 irrigation water, with conductivity ranging between 1,718 and 2,342 micromhos, chlorides ranging between 312 and 448 ppm, and boron ranging between 0.24 and 1.05 ppm. The chloride and total dissolved solids content of this water has usually exceeded recommended limits for drinking water. Bacterial counts were generally high.

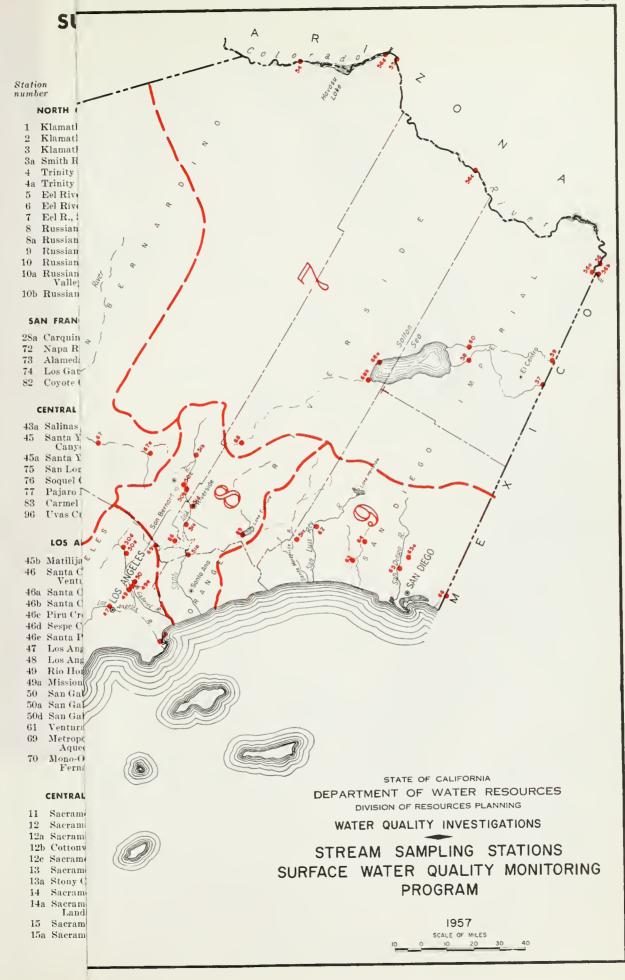
Tia Juana River at the International Boundary (Station 66) was dry, except in January and November 1957. Rodrigues Reservoir, ten miles upstream from the station, controls practically all of the surface runoff above this station.

Analyses of the two samples collected in 1957 showed that the character of the water continued to be sodium chloride. These analyses also showed that the river water was class 1 for irrigation, with 935 micromhos conductivity reported in January, and 715 micromhos reported in November. The water was moderately hard, and it met the recommended drinking water standards for mineral constituents. The concentration of constituents in the two samples collected in 1957 were significantly lower than concentrations found in previous years of record.

The brief flows in 1957 carried trash and some domestic wastes from the portions of the City of Tijuana adjoining the river channel.

Bacterial counts were high, and it is suspected that there may be numerous waste discharges to the river channel in Mexico.





#### STREAM SAMPLING STATIONS SURFACE WATER QUALITY MONITORING PROGRAM 1957

16 Secremento B of Rio Vista

16a Calaversa R at Jenna Lind

Mi belumne R mer Laurbe Plaus

Zir Mokelumne R below Georgiana M

24 San Josuph River at Friant

24). San Josquin R at Whitebouse

25 San Jeaquin R near Mendeta

M han Josquin R near tiragnon

The Sun Jusquin R at Mass Road Bridge 200 San Josquin R at Crows Landing Bridge

24a San Josephin R pear Biola

Station	 Ata

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NORTH	CDASTAL	REGION	(N

Klamath River sear Copco

2 Klumurh River at Somesbar 17c Burnes Creek near Burner

17d Indian Creek near Coverent Mills 4 Trinita Biver near Hoona 15 McCloud R ubore Sheets Lake 20 Feather B at Nicolaus 21 Yuba River of Margarille

7 Ref B . South Fork pear Mirroda 21a Yobs River over Smartville 8 Russian R . East Fork pear t'aluella # American River of Sacramento Sa Russian R near Hopland 9 Russian R near Healdsburg 22d American R at Fait Oaks 23 Motelumar R at Woodbridge

10s Rumian R. East Fork at Potter Valley Powerbouse

SAN FRANCISCO BAY REGION ING 2 Dia + arquinez Straits at Martinia

CENTRAL COASTAL REGION (No. 3)

45 Santa Voes Rever beine Les Laureles 27 San Jongain R near Vernelle

83 Carmel River pear Carmel

96 Uses Creek near Morgan Hill

LOS ANGELES REGION (No. 8) 45t Matilija i ceek above Matilije Pani-46 Santa Clara River at Lor Angeles Ventura County Line

40s Santa Clara R pror Santa Posts 40b Sunta t lars R at Blue t ut 4ter Pirm Freeh at Pirm 4thd heape Creek pear Fillmore 4the Sauta Paula Ck or Santa Pauls

47 Les Angeles R at Les Angeles 40 Rio Hondo at Whitter Narrow. 49m Mission Uk at Whittier Narouse

69 Metropolitan Water Histrick

70 Mono Cheens Appellier near San Fernando

CENTRAL VALLEY BEGION (No. 5) 11 Sacramento River at Delta

12b Cottonwood Ck nest Cottonwood 12c Bacramento It at Bend

13 Sacramento R nr Hamilton City I to Stony Preek or Hamilton City

14e Barramento Slongh or Knighte 95 Beer Creek near Vina 17 Serramento St or Smelgram Slough (B) Delto Cross Channel near Welcul

Station

99 Little Potato Slough at Terminaus

100 Stockton Ship | hannel on Rindge 101 Has Joaquin R at Carwood Bridge 101e San Jusquin R. at Brandt Bridge

102 San Jusquin 11 of Mousdale Bridge 103 Old Birer near Tracy 104 Old River at Platton Court Ferry 108 Italian Slaugh near Mouth 107 Indian Slaugh near Brentwood

105 Old River at Orwood Bridge Ithe Old River at Holland Tract 1985 Dutch Slough at Farrar Park Rrider 100 Rock Slongly near Knighteen

110 Lindsey Slough near Rin Vista 11th Cuche Slough below Lander Slough III Bear Creek near Stevinson 11th Sun Junquin R. abova Salt Spaugh 112 41d River at Mandeetlle Island 112b Sun Jouquin R at San Andreas

LAHONTAN REGION (No 6) 17b Sosan River at Sosanville

874 Mouse Biver at the Furks

25 San Junguin R at Autioch

.b King- River below Nurth Fark

4 Kings River below Peoples West

Kawesh B near Three Rivers

to Kern River near Bakerstiehl

itia Kern R telos babella Ham

'MI I'schot erek mer l'apay

24 Butte Creek near Chica

35 Big Chico t reck near Chico

Sin Sacramento R of Butte City for Mill Creek near Los Mullous

Dit South Housest Creek near Rangur

92a Salt Slough at San Lab Reach

DN Birka-Mendota Canal peer Trace

50s Al Ameri so I suol near Prior Knob 56b colorado Biver bel w Myralin Dam

564 Lake Hayana at Metropolitan Water

68 Whitewater R at Whitewater

50b Warm Creek at 45 fton 51a Santa Ana River near Prado Dam.

bil 4"hine t'reek pear t'bine 80 Lake Klainore near Lisipore

63 Escondido Creek pear Harmony Greek 64 Nan Birguito R below San Posquel

15 Nan Hirgo R at 4th Missing Dam

06 Tia Juana River at International

COLORADO SIVES BASIN SEGION (No. 7)

54 Lotorndo B. neor Topock, Arasons

5tic Colorado River bear Hirthe

58 New B near Westmurland

SANTA ANA BEGION INc. 8)

51b Santa Ann Buser near Mentone "ld Nania Ann River at Hiseraple 51r Santo Ana Hiver at Norce

SAN DIEGO REGION ING. 9; Sic Sents Margarita B pear Fallbrook

82 San Luis Bry Buser near Pale

Win Forester Creek at Mission Garge



# APPENDIX A

PROCEDURES AND CRITERIA



# APPENDIX A

PROCEDURES AND CRITERIA



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## Field Methods and Procedures

Water samples are collected in May and September each year for standard mineral, and heavy metals analyses and radiological assay. Water samples are collected the other ten months for partial mineral analysis. Duplicate samples are collected monthly for bacterial examination and are kept in portable ice boxes until mailed to the laboratory in special containers. Every effort is made to get the samples to the laboratory as quickly as possible.

At the time the samples are collected for laboratory examination, field determinations are made for dissolved oxygen (modified Winkler method), water temperature and pH. Visual inspection is made of the stream or lake and the physical conditions are noted.

Where possible, the sampling stations have been selected at bridges to permit the collection of the sample from the center of the stream. When bridges are not available, the sample is collected from the bank of the stream. Where water depth permits, the mineral and dissolved oxygen samples are collected with an integrating sampler which obtains a representative sample of the vertical cross section of the stream. Bacterial samples are collected by inverting a sterilized bottle and dipping at least four inches below the surface.

Where possible, the sampling stations have been selected so as to be at or near stream gaging stations so that gage heights can also be recorded at the time the water samples are collected. Instantaneous stream discharges at the time of sample collection are then obtained. In cases where instantaneous discharges are not available, mean daily discharges are used.

Agencies participating in the field sampling program are listed below, together with the number of stations sampled monthly by each agency:

Agency	Number of stations sampled
Department of Water Resources	121
Department of Public Health, Bureau of Sanitary Engineering	23
State Water Pollution Control Board	3
Department of Fish and Game	1
United States Bureau of Reclamation	18
United States Corps of Engineers	4
United States Geological Survey	6
Metropolitan Water District of Southern California	2
City of San Bernardino	2
City of Los Angeles, Department of Water and Power	1
City of Los Angeles, Department of Public Health	1
City of Long Beach, Department of Public Health	_1
Total	183

# Laboratory Methods and Procedures

Mineral analysis and determination of heavy metals are performed by the Water Quality Branch of the United States Geological Survey, and by the Department of Water Resources laboratories located in Sacramento, San Bernardino, and Riverside. Bacterial examinations are made by the California Department of Public Health, Division of Laboratories, in Berkeley and Los Angeles.

Methods of mineral and bacterial analysis, in general, are those described in the American Public Health Association publication entitled

"Standard Methods for the Examination of Water and Sewage", 10th Edition, 1955. In some cases the methods described in the following publications also have been employed:

- (1) U. S. Geological Survey, "Methods of Water Analysis", 1950,
- (2) California Department of Water Resources, "Tentative Methods of Water Analysis", September 1960.

Table A-l indicates the constituents analyzed in connection with this program:

TABLE A-1 Types of Analyses

Constituent	:Standard	d:Partial:	Racterial:	Radiological
Constituent	:mineral	:mineral:	bacter rat	Madiological
Specific conductance (ECx10 <sup>6</sup> @25°C)	) X	Х		
pH <sup>a</sup>	X	X		
Total dissolved solids (TDS)	X	Λ		
Percent sodium (%Na)	X	х		
Hardness	X	X		
Turbidity	X	X		
Coliform		••	Х	
Temperature <sup>b</sup>	Х	Х		
Dissolved oxygen (D.O.)b	X	X		
Calcium (Ca)	X	X		
Magnesium (Mg)	X	X		
Sodium (Na)	X	X		
Potassium (K)	X			
Carbonate (CO <sub>3</sub> )	X	X		
Bicarbonate (HCO3)	X	Х		
Sulfate (SOh)	X			
Chloride (Cl)	X	X		
Nitrate (NO <sub>h</sub> )	X			
Fluoride (F)	X			
Boron (B)	X	X		
Silica (Si)	X			
Phosphate (PO <sub>4</sub> )	X			
Zinc (Zn) <sup>c</sup>	X			
Iron (Fe) <sup>C</sup>	X			
Copper (Cu) <sup>c</sup>	X			
Aluminum (Al)	X			
Manganese (Mn) <sup>c</sup>	X			
Arsenic (As) <sup>c</sup>	X			
Hexavalent chromium (Cr+6)c	X			
Dissolved alpha				X
Solid alpha				X
Dissolved beta				X
Solid beta				X

a. pH determined both in the field and in the laboratory.b. Field determination.

c. These constituents are normally designated as heavy metals.

Radiological assays are performed by the California Disaster
Office's laboratory in Sacramento using the procedures set forth below:

Procedures and Interpretation of Results\* for Water Pollution Radioassay

#### I. ANALYTICAL PROCEDURES

# A. Sample Preparation

- 1. Samples are collected, where possible, from the center of the stream in one-half gallon jugs during the routine stream sampling program.
- 2. On receipt in the laboratory, each sample is well mixed, and two 250 ml aliquots taken. Each is acidified with a few drops of glacial acetic acid, and two drops of colloidal graphite suspension (Aquadag) added.
- 3. The aliquot is filtered under suction through a membrane ("Millipore") filter, which retains suspended particulate matter of approximately 0.2 microns diameter and larger. Filters are treated with an antistatic preparation (Merix Anti-Static No. 79-OL) to eliminate any extraneous electrostatic charge.
- 4. The filtrate is placed in a 250 ml volumetric flask, inverted and the mouth placed in a 1-3/4" x 1/4" aluminum culture dish in a "chicken-feeder" type arrangement. The flask is supported by a ring stand; the dish rests on a hotplate adjusted so that the sample is taken to dryness at a temperature well below boiling.
- 5. At this point there are duplicate samples of both suspended solids and dissolved material from each original water sample ready for determination of radioactive content.

## B. Counting Techniques

- 1. Two determinations are made on each sample, one for gross beta, and one for gross alpha radioactivity. This represents a total of eight determinations for each original sample.
- 2. Beta activity is determined with an internal gas flow counter operating in the proportional region, using argon-methane mixture as a flow gas. Background determinations are made before the first sample count each day, and then after each two sample counts throughout the day. Determinations of counter efficiency

<sup>\*</sup> Prepared by California Disaster Office, Radiological Service, revised September 11, 1957.

- are made with a reference standard (thallium 204) at least twice daily. Each determination of sample and background count rate is made for a total of 4,096 counts.
- 3. Alpha activity is determined with a scintillation counter utilizing an activated zinc sulfide phosphor sample. Background and efficiency measurements are made in the same manner as are the beta measurements except that polonium 210 is used as an alpha reference standard and each determination of sample and background count rate is made for a preset time of 32 minutes. Since samples are run in duplicate, the total time for each sample count and background determinations is 64 minutes.

# C. Calculations

- 1. Results are expressed as micro-micro curies per liter ( $\mu\mu$ c/l). One micro-micro curie is equivalent to 2.22 disintegrations per minute. Four values are reported for each sample: (a) beta activity in the solids retained on the filter, (b) beta activity in the filtrate (dissolved material), (c) alpha activity in the solids, and (d) alpha activity in the filtrate.
- 2. Sample counts are corrected for background and geometric efficiency.
- 3. Standard statistical procedures are utilized to compute the 0.9 error. The final result is expressed (symbolically) as  $x \pm y \mu\mu c/l$ . This means that in a series of determinations on the same sample, the value of x should fall between x y and x + y, 90% of the time.
- 4. In cases where zero or negative values are included between the limits of x + y and x y the result is reported as 0.

#### II. LIMITATIONS OF METHODS EMPLOYED

# A. Sample Preparation

A perfect sample for determination of radioactive content would be infinitely thin, and would contain all of the constituents of the original material except the water.

In practice, those criteria are virtually impossible to attain. Essentially infinitely thin samples can be prepared only from water with low solid and dissolved salt content. Some solid and dissolved materials are adsorbed on the walls of vessels used in sample collection and preparation. Volatilization and losses from spattering during volume reduction cannot be completely avoided. Thus, obviously, radioassay results are dependent upon sample preparation techniques.

# B. Nature of the Radioactive Disintegration Process and the Measurement thereof

At least three basic phenomena make the exact determinations of low levels of radioactivity extremely difficult. These are:

- 1. The random nature of the radioactive disintegration process limiting the accuracy of any determination because of statistical fluctuations inherent in the counting data.
- 2. The low ratio of sample count to background count. Any detector of radioactivity always measures (in the absence of an active sample) at a certain and not always constant level, which is termed the background radiation level. This is caused by cosmic radiation, traces of naturally occurring radioactive materials, and sometimes by "noise" characteristic of the electronic equipment used. In making determinations on samples in which the counting rate is only slightly higher than the background counting rate, inherent errors are relatively large.
- 3. Self-absorption. Unless samples are essentially infinitely thin, alpha and low-energy beta radiation arising from the lower layers of the samples may not penetrate the upper layers, and thereofre remain undetected.

Corrections can be made for self-absorption when dealing with known radioisotopes. In cases where the contaminant is not identifiable, these corrections cannot, as a rule, be made.

## C. Calculations

There are three factors which can lead to errors in the reported results. These are:

- 1. Geometric efficiency. This factor is determined using artificial standards. These are not prepared in the same manner as samples. Also it is possible that the energy of radiations emanating from the two standards may be significantly different from the unknown. Both of these considerations make the factors used rather artifical, and somewhat in error. It is not possible to determine the magnitude of this error, although it is probably not large in most cases.
- 2. Errors in sample count. Reasons for this were discussed in Sections A and B above.
- 3. Errors in confidence limits. Statistical computations made are based on the Gaussian approximation of the Poisson distribution law. At low count rates this approximation is subject to error.

The calculated confidence limits are based solely on statistical fluctuations caused by the random nature of the radioactive disintegration process. It is assumed that counts produced by background radiation and by electronic noise are also random.

All of the foregoing would tend to indicate that absolute determination of low levels of radioactivity is impossible. This is true, but by taking every possible measure to reduce sources of error, it is possible to obtain a relatively accurate measure of these low levels. As activity levels increase from near background, the precision of measurement increases correspondingly.

#### III. LIMITS OF DETECTABILITY

## A. Minimum Detectable Levels

- 1. Beta Activity. Equipment and techniques used are such that the minimum reliably detectable beta activity amounts to 7-8  $\mu\mu c/1$ .
- 2. Alpha Activity. Due principally to lower levels of alpha background radiation, alpha activity of the order of 1  $\mu\mu$ c/1 can be reliably detected.

There is one situation in which it is not possible to report such small amounts of activity. Some stream samples contain particulates of an amount and size distribution that causes the filter to clog. In such cases, it is not possible to filter a full 250 ml sample. Consequently, in applying the volume factor (see Sample Calculations) to subsequent calculations, a large error is introduced.

## B. Minimum Detectable Changes in Levels of Radioactivity

Knowing minimum detectable quantities of radioactivity, it is then pertinent to inquire as to the minimum increases above these which can be reliably measured. It is not possible to assign fixed values here, but it amounts to about 2  $\mu\mu c/l$  for beta, and 0.3  $\mu\mu c/l$  for alpha contamination.

#### IV. INTERPRETATION OF RESULTS

The various factors which limit the accuracy of measurement should be kept in mind in making interpretations of results. These factors are of considerable consequence for determinations which are only slightly above the background level, which is generally the case here.

The maximum concentration of radioactive contaminants of unknown nature in drinking water has been set at 100  $\mu\mu$ c/l. In this study, levels this high are generally not expected. The purpose is to establish a base-line or background level, and to provide a continuing check to determine if and when increases occur as a result of rapidly expanding peacetime uses of radioactive materials.

#### V. SAMPLE CALCULATIONS

Rs = Average count rate of duplicate samples = 55 counts/minute

Rb = Average count rate of background determinations = 50 counts/minute

Net count = Rs - Rb = 55 - 50 = 5 counts/minute

t = time of sample count = time of background count = 64 minutes

Activity =  $\frac{5 \text{ c/m} \times 4 \text{ (volume factor to put on a liter basis)}}{0.5 \text{ (geometric efficiency factor)} \times 2.22 \text{ d/m/µµc}} = 18.0 \text{ µµc/l}$ 

0.9 confidence level = 1.645 x 
$$\sqrt{\frac{Rs}{t_s} + \frac{Rb}{t_b}}$$
  
= 1.645 x  $\sqrt{\frac{55}{64} + \frac{50}{64}}$ 

= 2.1 counts/minute

$$\frac{2.1 \times 4}{.5 \times 2.22} = 7.6 \, \mu \mu c / 1$$

Thus the activity of this sample is  $18.0 \pm 7.6 \,\mu\mu c/l$ .

This means that in a series of determinations on this sample, 90% of the time the value would fall between 10.4 and 25.6  $\mu\mu c/1$ .

This basic formula is used for alpha and beta determinations. For alpha, ts and tb are constant. For beta, ts and tb are variable and are functions of Rs and Rb, respectively.

# Water Quality Criteria

Criteria currently used by the Department of Water Resources to determine acceptability of water for the most common beneficial uses are described hereinafter. In general, the values presented herein should be considered only as guides to judgment, and not as absolute limiting standards.

## Criteria for Drinking Water

Chapter 7 of the California Health and Safety Code contains laws and standards relating to domestic water supply. Section 4010.5 of this code

refers to the drinking water standards promulgated by the United States

Public Health Service for water used on interstate carriers. These criteria

have been adopted by the State of California. They are set forth in detail

in United States Public Health Report, Volume 61, No. 11, March 15, 1946,

reissued in March 1956.

According to Section 4.2 of the above-named report, chemical substances in drinking water supplies, either natural or treated, should not exceed the concentrations shown in Table A-2.

The suspected relationship of the occurrence of infant methemoglobinemia to the presence of nitrates in the water supply has led to limitation of allowable nitrates in drinking water. The California State Department of Public Health has recommended a tentative limit of 10 ppm nitrate nitrogen (44 ppm nitrates) for domestic water. Any water containing higher concentrations should be considered of questionable suitability for domestic and municipal use.

TABLE A-2
LIMITING CONCENTRATIONS OF MINERAL
CONSTITUENTS FOR DRINKING WATER

# United States Public Health Service Drinking Water Standards, 1946

Constituent	:	Parts per million
Mandatory		
Fluoride (F)		1.5
Lead (Pb)		0.1
Selenium (Se)		0.05
Hexavalent chromium (Cr+6)		0.05
Arsenic (As)		0.05
Nonmandatory but Recommended Values		
Iron (Fe) and manganese (Mn) together		0.3
Magnesium (Mg)		125
Chloride (Cl)		250
Sulfate (SO <sub>4</sub> )		250
Copper (Cu)		3.0
Zinc (Zn)		15
Phenolic compounds in terms of phenol		0.001
Total solids - desirable		500
Total solids - permitted		1,000

The California State Board of Public Health recently has defined the maximum safe amounts of fluoride ion in drinking water in relation to mean annual temperature.

Mean annual	Mean monthly maximum
temperature	fluoride ion concentration
<u>in °F</u>	in ppm
50	1.5
60	1.0
70 - above	0.7

Limits may be established for other organic or mineral substances if their presence in water renders it hazardous, in the judgment of state or local health authorities.

An additional factor with which water users are concerned is the factor of hardness. Hardness is due principally to calcium and magnesium salts and is generally evidenced by inability to develop suds when using soap. The United States Geological Survey has suggested the following tabulation for degrees of hardness:

TABLE A-3

HARDNESS CLASSIFICATION OF WATERS
U. S. Geological Survey

Range of hardness	:	Relative
in parts per million	:	classification
0 - 55		Soft
56 <b>-</b> 100		Slightly hard
101 - 200		Moderately hard
<b>a</b>		W 13
Greater than 200		Very hard

While radioactivity criteria for water use is still in a state of development, the maximum concentration, in drinking water, of radioactive contaminants of unknown nature has usually been set at 100  $\mu\mu c/l$ .

# Criteria for Irrigation Water

The following criteria for mineral quality of irrigation water have been developed at the University of California at Davis and at the United States Department of Agriculture Regional Salinity Laboratory at Riverside. Because of diverse climatological conditions and variations in crops and soils in California, only general limits of quality for irrigation waters can be suggested. The department uses the three broad classifications of irrigation waters listed in Table A-4.

TABLE A-4
QUALITATIVE CLASSIFICATION OF IRRIGATION WATERS

	: Class l	Class 2	: Class 3
	Excellent to good	Good to injurious	:Injurious to :unsatisfactory
Chemical properties	: (Suitable for most:	(Possibly harmful	l: (Harmful to
	: plants under any :	for some crops	:most crops and
	:conditions of soil:	under certain	unsatisfactory
	: and climate) :	soil conditions	): for all but the
	:		:most tolerant)
Total dissolved solids			
In ppm	Less than 700	700 - 2,000	More than 2,000
In conductance, ECx10 <sup>6</sup>	Less than 1,000	1,000 - 3,000	More than 3,000
, , , , , , , , , , , , , , , , , , , ,		_,	3,111
Chloride ion concentration			
In milliequivalents			
per liter	Less than 5	5 - 10	More than 10
In ppm	Less than 175	175 <b>-</b> 350	More than 350
Sodium in percent of			
base constituents	Less than 60	60 - 75	More than 75
Boron, in ppm	Less than 0.5	0.5 - 2.0	More than 2.0

## Criteria for Industrial Water

The water quality criteria for the diversified uses of water in industry range from the exacting requirements for make-up water for high pressure boilers to the minimum requirements for water for washdown and metallurgical processing.

Because of the large number of industrial uses of water and widely varied quality requirements, it is practicable to suggest only very broad criteria of quality. These variable conditions make it desirable to consider water quality requirements in broad and general terms only, and where possible, for groups of related industries rather than individually. The general quality requirements of several individual and major groups of water uses are listed in Table A-5. The values shown in this table are those suggested in the progress report of the Committee on Quality of Tolerance of Water for Industrial Uses in the Journal of the New England Water Works Association, Volume 54, 1940.

# Criteria for Fish and Aquatic Life

Water of suitable quality and quantity is a fundamental requirement for the existence of an abundant supply of fish and aquatic life. It is very important that water quality conditions be such as to maintain an abundant supply of food required by fish and other desirable forms of aquatic life. Streams utilized for the propagation of fish and aquatic life should be free of toxic or harmful concentrations of mineral and organic substances and excessive turbidity. Extensive field and laboratory studies conducted by the United States Fish and Wildlife Service show that, among other things, the water in streams supporting a mixed fauna of warm water fish such as bluegill, bass, crapple, and catfish should have the following properties:

- (a) dissolved oxygen not less than 5 ppm (at least 6 ppm for Salmonoids),
- (b) pH range between 6.5 and 8.5,

TABLE A-5

WATER QUALITY TOLERANCE FOR INDUSTRIAL USES<sup>8</sup>

Allowable limits in parts per million

Use	Tur- bidity	Color	ness as	Iron <sup>5</sup> as Fe	Man- ganess	Total solids	Alkalinity as CaCO3	Odor,	Hydro-gen	Heelth	Misoellaneous Requirements
Air conditioning Baking	10	10		0.5	0.5	1 1 1 1 1 1 1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Low	1 0.2	Potable <sup>b</sup>	No corrosiveness, slime forration
ewing Light Beer Dark Beer	10 10	t 1 t 1 1 t	1 1 1 1 1 1 1 1 1	0.1	F. 0	500	75	Low	0.2	Potable <sup>b</sup> Potable <sup>b</sup>	NaCl less than 275 ppm (pH 6.5-7.0). NaCl less than 275 ppm (pH 7.0 or more)
Canning Legumes Ceneral Carbonated beverages	10 10 2	1001	25-75	0000	0.2	850	50-100	Low Low	1 0.2	Potableb Potabl∈b Potabl€b	Organic color plus oxygen consumed less
Cooling Food: General		1 1 1 1	1 1 1 1 2 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1	00000 90000	00000	00111		هر هر کړ	5 0 2	otable <sup>b</sup> otable <sup>b</sup>	than 10 ppm.  pH above 7.0 for hard candy. No corrosiveness, slime formation.  SiO <sub>2</sub> less than 10 ppm.
Plastics, clear, Uncolored	1 6 G	1			0.02	500			1 1 1 3 1 1 1 1 1		No grit. corroctoness.
Draft pulp Soda and sulfide High-grade	22 22	10 12	100	0.1	0.05	300 200					
Rayon (viscose); Pulp production Manufacture Tanning	200.3	5	8 55 50 <b>-1</b> 35	0.05	0.03	1000	total 50; hydroxide 8 total 135;	1 1 1	1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Al <sub>2</sub> O <sub>3</sub> less than 8 ppm, SiO <sub>2</sub> less than 25 ppm, Cu less than 5 ppm. pH 7.8 to 8.3
Textiles: General	ו ו ו	ш\	1 1 1		0.25	500	hydroxide 8		1 1 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Constant composition. Residual alumina less than 0.5 ppm.

a-Moore, E. W., Progress Report of the Committee on Quality Tolerances of Water for Industrial Uses: Journal New England Water Works Association, Volume 54, Page 271, 1940.
b-Potable water, conforming to U. S. P.H.S. standards, is necessary.
c-Limit given applies to both fron alone and the sum of fron and manganese.

A-14

- (c) ionizable salts, as indicated by conductivity, between 150 and 500 micromhos at 25° Centigrade, and in general not exceeding 1,000 micromhos,
- (d) ammonia not exceeding 1.5 ppm.

Mineral salts of high toxicity to fish are those of silver, mercury, copper, zinc, lead, cadmium, nickel, trivalent and hexavalent chromium, and others. Some pairs of toxicants, such as copper and zinc (also copper and cadmium, nickel and zinc) are far more toxic when combined than when they occur individually. Other toxic substances, when combined, neutralize each other through antagonism or chemical reaction (e.g., free cyanide combines with toxic heavy metal cations, such as nickel and copper ions, to form relatively harmless metallocyanide complexes).

The increasing use of household and industrial detergents, as well as the expansion in the manufacture and use of agriculture insecticides, poses serious hazards to fish and aquatic life. Preliminary studies, for example, indicate that one of the most common household detergents is lethal to relatively hardy fish at very low concentrations. This detergent was lethal to fish in fresh water at concentrations below 0.1 ppm and below 0.005 ppm in salt water. The increase in toxicity in salt water can probably be attributed to the fact that marine fishes must ingest water to maintain their osmotic balance.

Development and use of water resources, including the construction of dams for storage of water, frequently affects water temperature which in turn affects fish and other aquatic life. Optimum water temperature for cold water fish, such as trout and salmon, normally lie between 32° and 65° Fahrenheit. The cold water species are generally intolerant to temperatures above 75° Fahrenheit and will seek the lower temperature

where possible. Warm water fish such as minnows, carp, catfish, perch, sunfish, and bass normally live in water having temperatures ranging from near 32° to 86° Fahrenheit. Acclimation enables certain warm water species to live in water having temperatues as high as 90° Fahrenheit, although they will migrate, where possible, to waters below 86° Fahrenheit.

# APPENDIX B

BASIC DATA



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TABLE B-1 SAMPLING STATION DATA NO!CH COASIAL REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled By a	Analysi Mineral	Analysis on Page ineral Radioassay
Eel River near McCann	5	25/3E-3	rd 	Bridge 1 mile northwest of McCann	BSE	B-41	B-251
Eel River at Scotia	9	1N/1E-7	П	Left bank below U.S. Highway 101 Bridge between Scotia and Rio Dell	BSE	B-42	B-251
Eel River, South Fork near Miranda	7	35/4 <b>E-</b> 30	7	Right bank below Gage,6 miles South of Miranda at Sylvandale Camp Grounds on U.S.Highway loland 0.9 mile south of Rocky Glen Creek	BSE	B-43	B-251
Klamath River near Copco	п	48N/5M-36	П	Right bank at USGS gaging station one mile south of Copco Post Office, 0.5 mile downstream from Copco No. 2 plant of the California-Oregon Power Company and 500 feet downstream from Fall Creek.	ত জ দ	B-44	B-251
Klamath River near Klamath	m	13N/2E-17	ч	Right bank at USGS gage located 5.7 miles upstream from town of Klamath	BSE	B-45	B-251
Klamath River at Somesbar	N	11N/6E-4	П	Left bank 100 feet downstream from gage, 1 mile west of Somes-bar Post Office and 300 feet downstream from Salmon River.	BSE	B-46	B-251
Russian River at Guerne- ville	10	8N/10 <i>W</i> -32	Н	Right bank below highway bridge in Guerneville, 6.5 miles upstream from Austin Creek.	BSE	B-47	B-251
Russian River near Healdsburg	6	9N/9W-22	П	Left bank below gage, 2 niles east of Healdsburg and 3.5 miles upstream from Lry Creek.	BSE	B-48	B-251

TABLE B-1
SAMPLING STATION DATA
NORTH COASTAL REGION

Analysis on Page Mineral Radioassay	B-49 B-251	B-50 B-251	B-51 B-251	B-52 B-251	B-53 B-252	B-54 B-252	B-55 B-252
-		Å.	<u>4</u>	ф	<u></u>	<u></u>	<u></u>
Sampled By a	BSE	BSE	BSE	BSE	BSE	BSE	BSE
Sampling Point	Right bank below gage at abandon-ed bridge 0.6 mile off U.S. High-way 101 on Largo Road and 3.8 mi.	Left bank upstream from Talmadge Road Bridge about 1 mile south- east of Ukiah.	Left bank about 0.2 mile down-stream from gage. Gage located on right bank, 5.1 miles east of U.S. Highway 101 on State Route No. 20	Tailrace of PG&E Powerhouse, 3 miles northeast of town of Potter Valley.	From left bank below gage, 8 milæeast of Crescent City and 0.5 mile downstream from South Fork.	From left bank near gage located 2 miles southeast of Hoopa and 0.5 mile downstream from Campbell Creek on Hoopa Indian Reservation and on property of Sugar Pine Lumber Company	From left bank below gage at Highway Bridge at Lewiston, 0.8 mile downstream from Deadwood Creek.
Region	Н	Н	Ч	Н	П	н	
Location	14N/12W-36	15N/12W-28	16N/12W-13	9-w11/N/1	16N/1E-10	EN/5E-31	33N/8W <b>-</b> 19
Sta.	8 S	10b	₩	lna	3a	7	<b>7</b>
Sampling Station	Russian River near Hopland	Russian River near Ukiah	Russian River, East Fork near Calpella	Russian River, East Fork at Potter Valley Power- house.	Smith River near Crescent City	Trinity River near Hoopa	Trinity River at Lewiston

TABLE B-2

TABLE B-2
SAMPLING STATION DATA
SAN FRANCISCO BAY REGION

TABLE B-3
SAMPLING STATION DATA
CENTRAL COASTAL REGION

s on Page Radioassay	B-255	B-255	B-255	B-255	B-255	B-255	B-255
Analysis Mineral R	B-63	B-64	B-65	B-66	B-67	B-68	B-69
Sampled By <sup>a</sup>	D;,IR	DWR	BSE	DWR	BSE	RSE	DWR
Sampling Point	Right bank about 30 feet below Rancho San Carlos Bridge about 3 miles east of Carmel.	Right bank at Highway Bridge on Chittenden Road at Santa Cruz-San Benito County line 1 mile southeast of Chittenden and 2.5 miles downstream from San Benito River.	From left bank just upstream from USGS gage on State Highway 4.1 Bridge at Paso Robles, 3.5 mile upstream from Huerhuero Greek.	At Sequoia Gardens Resort on right bank 1.7 miles south of Felton, West of State Highway 9. Gage 0.8 mile downstream from sampling point.	From left bank at USGS gage located O.1 mile downstream from Los Laureles Canyon and 13 miles east of Santa Ynez.	From right bank near USGS gage at Mission Bridge 25 feet downstrean from Alisal Greek and 0.9 mile south of Solvang.	From left bank at foot of gage, 0.25 mile upstream from bridge on Old Santa Cruz Highway.
Region	8	М	M	~	m	m	ω
Location	16S/1E-17	12S/3E-12	26S/12E-28	108/24 <b>-</b> 26	5N/28M-6	6N/31W-22	01-M1/511
Sta.	83	77	43a	75	45	4.5a	76
Sampling Station	Carmel River near Carmel	Pajaro River near Chittenden	Salinas River at Paso Rolæ	San Lorenzo River at Big Trees (near Felton)	Santa Ynez River below Los Laureles Canyon	Santa Ynez River at Solvæg	Soquel Creek at Soquel

TABLE B-3
SAMPLING STATION DATA
CENTRAL COAUTAL REGION

s on Page Radioassay	B-255
Analysis Mineral Ra	B-70
Sampled By a	DWR
Sampling Point	At discharge pipe below Uvas Dam O.6 mile downstream from Eastman Cunyon and 4.8 miles southwest of Morgan Hill.
Region	$\sim$
Location	10S/3E-18
Sta.	96
Sampling Station	Uvas Creek near Morgan Hill

SAMPLING STATION DATA LCS ANGELES: PEGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled By <sup>a</sup>	Analysi Mineral	Analysis on Page ineral Radioassay
Los Angeles Niver at Long Beach	87	45/134-26	7	Highway 101 (State Street)Bridge, sampled from left bank just downstream from bridge.	LhPH DWR-LA	B-71	B-257
Los Angeles River at Los Angeles	1.7	15/13W-21	4	USGS and LACFCL gaging station at Figuerca Street Bridge, ^.1 mile upstream from Arroyo Seco Confluence.	LAPH DWR-LA	B-72	B-257
Matilija Creek above Matilija Lam	q <b>5</b> 7	5N/23W-19	7	Left bank at USGS gaging station 1.7 miles northwest of Matilija and 2 miles upstream from Matilija Dam.	BCE	B-73	B-257
Metrcpolitan Water District Aqueduct at La Verne	69	JS/9W-6	7	Raw water inflow to Metropolitan water district treatment plant (monthly composite sample).	MWD	В-74	
Mission Creek at Whittier Narrows	7 6 <b>8</b>	2S/11W-6	7	2 miles northeast of Montebello at LACFCD gaging station 200 yards upstream from San Gabriel Blvd. Bridge. Sampled from right bank at gage.	DWR-LA	B-75	B-257
Mono-Owens Aqueduct near San Fernando	70	3N/15W-30	7	At inlet to upper San Fernando Res <b>e</b> rvoir	LADWEP	B-76	
Piru Creek near Piru	790	4N/18W-20	7	Right bank just downstream from railroad bridge at Piru.	DWR-LA	B-77	B-257
Rio Hondo at Whittier Narrows	67	2S/11W-6	7	Right bank, 125 yards upstream from San Gabriel Blvd. Bridge. Sampled at IACFCD gaging station.	DWR-LA	B-78	B-257

TABLE B-4
SAMPLING STATION DATA
LOS ANGELES REGION

Analysis on Page ineral Radioassay	B-257		B-257	B-257	B-257	B-257	B-257
Analysi Mineral	B-79	B-80	B-81	B-82	B-83	B-84	B-85
Sampled By a	DWR-LA	Dwit-LA	D.JR-LA	DWR-LA	Dyr-LA	DWR-LA	DWR-LA
Sampling Point	From power plant at Tailrace of the Azusa power plant.	At USGS gaging station 3 miles Northeast of Azusa, 1 mile below Morris Dam. Sampled from right bank at Gage.	From right bank 200 feet beyond end of San Gabriel Blvd. extended (Syphon Road) upstream from Whittier Narrows Dam.	l mile downstream from Station 46 at Tapo Canyon pipe and road crossing and 0.5 mile downstream from Ventura County gaging station. Sampled downstream from road culvert.	0.5 mile west of Los Angeles-Ventura County Line and 0.5 mile upstream from Ventura county gage Sampled from left bank at Newhall Ranch road crossing.	Station located 1.5 miles upstream from Santa Paula Bridge (Willard Bridge) and 100 feet north of South Mountain Road. Sampled from left bank.	From right bank at USGS gage near Santa Paula
Region	4	7	4	4	7	4	4
Location	1N/10W-22	1N/10W-13	2S/11W-5	4N/18W-25	61-ML/N7	3N/21W-12	4N/21W-27
Sta.	50d	50a	50	76b	97	7ea	74e
Sampling Station	San Gabriel River at Azusa Powerhouse	San Gabriel River near Azusa	San Gabriel River at Whit- tier Narrows	Santa Clara River at Blue Cut	Santa Clara River at Los Angeles-Ventura County Line	Santa Clara River near Santa Paula	Santa Paula Creek near Santa Paula

TABLE B-4

SAMPLING STATION DATA LOS ANGELES REGION

Analysis on Page	B-257	B-257
Analysi Mineral	B-86	B-87
Sampled By a	DUR-1.A	DWR-LA
Sampling Point	From left bank during low floward from right bank at USGS gage during high flow.	Station located at USGS gage in Foster Memorial Park on right bank, 5 miles north of Ventura, 300 feet downstream from Highway 150 bridge.
Region	7	4
Location	4N/20W-12	3N/23W-8
Sta.	p97	61
Sampling Station	Sespe Creek near Fillmore	Ventura River near Ventura



TABLE B-5
SAMPLING STATION DATA
CENTRAL VALIEY REGICN

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled Bya	Analysi	Analysis on Page ineral Radioassay.
American River at Fair Oaks	23d	9N/6E-13	20	At Old Fair Oaks Bridge, gage located on right bank just up- stream from old Highway Bridge.	nscs	B-89	
American River below Nimbus Dam	22a	9N/7E-16	45	Downstream from Nimbus Dam	USBR	B-91	
American River at Sacrament	22	8N/5E-3	₹	At "H" Street Bridge, Waterstage recorder located on left bank on upstream side of bridge.	DWR	B-92	B-259
Bear Creek near Stevinson	ננו	7S/10E-36	2	Right bank 4.5 miles southeast of Stevinson at washed out wooden bridge.	DWR	B-93	
Bear River near Wheatland	78	13N/5E-3	50	Left bank, 30 feet downstream from gage located on downstream side of bridge on U.S.Highway 99E I mile southeast of Wheatland.	DWR	B-94	B-259
Big Chico Creek near Chico	8 2	22N/2E-9	70	Right bank at gage located approximately three miles upstream from golf course clubbouse in Bidwell Park and 6 miles northeast of Chico.	DWR	B-95	
Burney Creek near Burney	17c	35N/3E-18	r)	Timber Bridge on Jack Rabbit Flat Road, about 1.0 mile west of Burney on Highway 299, then about 0.2 mile south of highway 299 on Jack Rabbit Flat Road.	DWR	B-96	B-259
Butte Creek near Chico	778	22N/2E-36	25	Right bank at foot of gage 0.8 mile downstream from Little Butte Creek and 7.5 miles east of Chico	DWR	B-97	

TABLE B-5 SAMPLING STATION DATA

CENTRAL VALLEY REGION

Cache Creek near Capay 80 10N/2W-8 Cache Creek near Lower 42 12N/6W-6 Lake	rv rv	1 - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 -			
creek near Lower 42	2	right bank at gage located 3 hild northwest of Capay and 2 hiles upstream from Clear Lake Water Co. Diversion Dam.	DWR	B-98	B-259
		Left bank at foot of gage about 500 feet downstream from dam and about 2.5 miles southeast of State Highway 53.	DWR	B-99	B-259
Cache Creek, North Fork 79 14N/6W-31 near Lower Lake	'n	Bridge on State Highway 20 betwer Williams and Clear Lake. Gage located on right bank 2.7 miles northwest of bridge.	DWR	B-100	B-259
Cache Slough below Lindæy 110a 5N/3E-31 Slough	70	At Liberty Island Ferry just down stream from confluence of Cache Slough and Lindsey Slough.	USBR	B-101	
Calaveras River near Jenny 16a 3N/10E-27 Lind	<i>'</i> \	From right bank about 150 feet downstream from USGS gage located 70 feet below bridge on Milton Road, 0.2 mile south of Jennylind	DWR	B-102	B-259
Clear Lake near Clearlake 40 14N/8W-27 Oaks	٧.	At Gordy's Fish Harbor Motel at Glen Haven 3.6 miles northwest of Clearlake Oaks.	DWR	B-103	B-259
Clear lake at Lakeport 41 14N/10W-24	70	End of pier at foot of 3rd St. at north end of park. Staff gage located on piling at end of pier.	DWR	B-104	B-259
Colusa Trough near Colusa 87 16N/2W-34	77	At Colusa-Williams highway bridge 3 miles west of Colusa. Water-stage recorder on upstream side	DWR	B-105	

TABLE B-5

TABLE B-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled By a	Analysi Mineral	Analysis on Page fineral Radioassay
Contra Costa Canal at First Pump Lift	109a	2N/2E-25	5	At pumping plant No. 1, 0.7 mile east of Oakley and 2.6 miles northeast of Knightsen.	USBR	B-106	
Consumnes River near Michigan Bar	7/6	8N/8E-36	5	At Mighican Bar road bridge about 1 mile north of Michigan Bar.	DWR	B-107	
Cottonwood Creek near Cottonwood	12b	29N/3W-7	5	Right bank at gage house located 2 miles east of Cottonwood.	DWR	B-108	B-259
Deer Creek near Vina	95	24N/2W-14	<b>1</b> 0	Left bank under U.S.Highway 99E Bridge 1 mile north of Vina. DWH Gage located approximately 400' downstream from U.S. Highway 99E bridge on left bank.	DWR	B-109	
Delta Cross Channel near Walnut Grove	86	5N/4E-35	<i>S</i>	Sampled from river side of gate structure when gates are open and from highway bridge when gates are closed.	DWR	B-110	
Del ta-Mendota Canal near Mendota	92	13S/15E-19	2	Right bank 1 mile upstream from canal gates and 2 miles north of Mendota on Bass Road.	DWR	B-111	B-259
Delta-Mendota Canal near Tracy	93	1S/4E-30	<i>7</i> 0	Left bank downstream from Byron-Bethany Road cross-over, about 1 mile upstream from Tracy pumping plant, about 10 miles northwest of Tracy.	DWH	B-112	
Dutch Slough at Farrar Park Bridge	108b	2N/3E-22	<i>5</i> 0	From Farrar Park Bridge on Bethel Island Road.	USBR	B-116	

TABLE By-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

Analysis on Page ineral Radioassay		B-260	B-260	B-260			B-260
Analysi Mineral	B-117	B-118	B-122	B-123	B-124	B-125	B-126
Sampled Bya	USBR	DWR USGS	DWR	DWR	DWR	DWR	DWR
Sampling Point	At Junction with Fisherman's Cut	Left bank at gage located 0.5 miles downstream from highway bridge at Nicolaus.	Left bank at gage located 75 feet upstream from bridge on Feather River Highway (State Hwy.24), two miles downstream from confluence of North and Middle Forks and 4 miles northeast of Oroville.	At bridge about 1 mile above gage which is located 0.8 mile upstrem from Dixie Creek and 1.5 miles south of town of Crescent Mills.	At east Contra Costa Irrigation District Canal at the District's Pump No. 1 on Bixler Road at the head of Indian Slough, 3 miles north of Byron.	From boat landing on right bank at confluence of slough and old river about 3 miles southeast of Byron.	Left bank at gage located 2.5 miles downstream from South Fork and 3 miles southwest of Three Rivers on Highway 198. Approximately 0.5 miles past Cobbles Lodge.
Region	У.	7.	ζ.	ν.	70	<i>1</i> 0	<i>r</i> v
Location	3N/3E-36	12N/3E-12	19N/4E-2	26N/9E-25	1N/3E-22	15/45-7	17S/28E-33
Sta. No.	112a	20	19	17d	107	106	35
Sampling Station	False River at Webb Pump	Feather River at Nicolaus	Fea her River near Oroville	Indian Creek near Crescent Mills	Indian Slough near Brent- wood	Italian Slough near mouth	Kaweah River near Three Rivers

SAMPLING STATION DATA CENTRAL VALLEY REGION

s on Page Radioassay	B-260	B-260	B-260	B-260	B-260	B-260		
Analysis on Page Mineral Radioassa	B-127	B-128	B-129	B-130	B-131	B-132	B-133	В-134
Sampled By a	DWR	C of E	C of E	C of E	DWR	C of E	DWR.	DWR
Sampling Point	From Diversion Weir located at mouth of Lower Canyon 5 miles northeast of Bakersfield.	Right bank, 500 feet downstream from outfall tunnel.	At gage 3 miles upstream from Salmon Creek and 15 miles north of Kernville.	From bridge at midstream 0.8 mile downstream from North Fork.	At gage on left bank about 0.25 mile downstream from Diversion Weir, 2 miles south of Kingsburg and 12 miles northeast of Hanford	Left bank, 3000 feet downstream from the dam.	From boat landing near gage located at Montezuma Ranch, Head- quarters of California Packing Corporation, 6 miles north of Rio Vista.	From boat dock on east bank approximately 250 feet north of State Highway 12 bridge.
Region	2	20	72	20	<i>1</i> 0	2	M	ĸ
Location	29S/28E-2	26S/33E-19	23S/32E-14	12S/26E-21	17S/22E-1	135/24E-2	5N/2E-25	3N/4E-13
Sta.	36	36а	36b	33c	34	33b	110	66
Sampling Station	Kern River near Bakersfæld	Kern River below Isabella Dam	Kern River near Kernville	Kings River below North Fork	Kings River below Peoples Weir (near Kingsburg)	Kings River below Pine Eat Dam	Lindsey Slough near Rio Vista	Little Potato Slough at Terminous

TABLE .B-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

Analysis on Page Mineral Radioassay	B-260	B-260	B-260				B-261
Analysi: Mineral	B-135	B-136	B-137	B-138	B-139	B-140	B-141
Sampled Bya	BSE	DWR	DWR	DWR	USBR	USBR	DWR
Sampling Point	Left bank below gage located just upstream from Shasta Lake 0.3 mile downstream from Bollibokka Creek and 11 miles east of Delta. Stream confined in a steep rocky canyon. Station inaccessible by road. One and one-half hour walk to station.	Right bank at foot of gage located at Exchequer, 0.5 mile downstream from Lake McClure and 5 miles northeast of Merced Falls.	From right bank approximately 100 feet upstream from gage. Gage located 6 miles northwest of Stevinson.	Right bank below Highway 99E Bridge, 1.5 mile north of Los Molinos. Gage located downstream from bridge.	From bridge, approximately 2.5 miles north of Thornton on Thornton-Franklin Koad.	From Highway 12 bridge approx- imatery 5 miles west of Terminous	Left bank near Gage, located 1 mile east of Lancha Plana, 3 miles down stream from Pardee Dam and 5 miupstream from Comanche Creek.
Region	<i>1</i> 0	50	5	5	٧.	т.	70
Location	36N/3W-28	45/15E-14	6S/9E <b>-</b> 36	25N/2M-9	5N/5E-29	3N/4E-7	4N/10E-4
Sta.	18	32a	32	∞	23b	23c	23a
Sampling Station	McCloud River above Shasta Lake	Merced River below Exchequer Dam	Merced River near Stevinsm	Mill C <b>r</b> eek near Los Molinos	Mokelumne River below Consumnes River	Mokelumne River below Georgiana Slough	Mokelumne River near Lancha Plana

WADIE B.A

TABLE B-5 SAMPLING STATION DATA CENTRAL VALLEY REGION

Analysis on Page ineral Radioassay	B-142 B-261	B-146	B-147	B-148	B-149 B-261	B-150	B-151 B-261
Σ	Å	<u></u>	<u></u>	<u></u>	ф	<u></u>	M M
Sampled By a	DWR USGS	DWR	USBR	DWR	DWR	DWR	DWR
Sampling Point	Left bank at foot of gage house located 0.4 mile downstream from dam and canal intake of Woodbridge Irrigation District.	From Ferry at left bank about 10 miles northwest of Tracy and 6 mi southeast of Byron. Gage located on left bank 0.3 mile upstream from Ferry.	Approximately 1 mile north of confluence of Old River and Rock Slough.	Right bank at Northwest side of Mandeville Island. Gage located on northeast side of Bacon Island	Boat dock on right bank at Atchison-Topeka & Santa Fe Railroad Bridge about 6 miles northeast of Byron.	Left bank at trash rack of Naglee-Burk pump intake at end of Lawmers Road and about 5 miles Northwest of Tracy.	About 500 feet downstream from bridge on U.S.Hwy 299 located about 4.5 mi. southwest of Canby. Water state recorder located on right bank 0.5 mile upstream from
Region	ъ.	10	72	<i>r</i> v	<i>S</i>	۲۰	۲۰
Location	4N/6E-34	15/45-20	2N/4E-19	2N/4E-6	1N/4E-17	2S/5E-6	41N/9E-10
Sta.	23	104	1088	112	108	103	17a
Sampling Station	Mokelumne River at Wood- bridge	Old River at Clifton Court Ferry	Old River at Holland Tract	Old River at Mandeville Island	Old River at Orwood Bridge	Old River near Tracy	Pit River near Canby

TABLE B-5 SAMPLING STATION DATA

CENTRAL VALLEY REGION

	s on Page Radioassay	B-261		B-261	B-261			B-261	B-261
	Analysis Mineral F	B-152		B-153	B-154	B-155	B-158	B-161	B-162
	Sampled By <sup>a</sup>			DWB	DWR	USGS- WPCB#5 Coop,	USGS- WPCB#5 Coop.	BSE	DWR
CENTRAL VALLEI REGION	Sampling Point	bank	from gage, located 1 mile upstream from Cow Canyon Creek and 3.5 mile west of town of Montgomery Creek.	Left bank 50 feet below gage located 8.2 miles west of Winters on State Highway 128.	Tule Lane Bridge at head of slough 300 feet south of gates of Contra Costa Canal intake and two miles northeast of Knightsen.	At Bend highway bridge	On left bank 0.5 mile south of Butte City.	Right bank 50 feet upstream from gage, located 0.2 mile downstream from Dog Creek and 0.6 mile southeast of Delta.	At Gianella Bridge on State Hwy #32 between Hamilton City and Chico. Sampled from each channel from bridge (composite of two samples). Gage on left bank on downstream side of bridge.
CENTRAL	Region	5		70	72	22	2	72	<i>r</i> U
	Location	35N/IW-32		8N/2W-28	2N/3E-34	28N/3W-20	19N/1W-32	36N/5W-35	22N/1M-20
	Sta.	17		lβ	109	12c	87a	11	13
	Sampling Station	Pit River near Montgomery	Creek	Putah Creek near Winters	Rock Slough near Knightsen	Sacramento River at Bend	Sacramento River at Butte City	Sacramento River at Delta	Sacramento River near Hamilton City

SAMPLING STATION DATA CENTHAL VALLEY REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled Bya	Analysis on Mineral Radio	s on Page Radioassay
Sacramento River at Keswick	12	32N/5W-28	72	From left bank about 100 feet upstream from gage located 0.6 mile downstream from Keswick Dam, 0.6 mile upstream from Middle Creek, 1.5 mile downstream from Keswick and 10 miles downstream from Shasta Dam.	BSE	B-163	B-261
Sacramento River at Knights Landing	174	11N/2E-14	٧.	From state highway #24 bridge. Water stage recorder 0.3 mile downstream from bridge. Composite of two samples.	DWR USGS	B-164	B-261
Sacramento River near Redd- ing	12a	31N/4W-18	50	From right bank about 500 feet downstream from gage located below Anderson-Cottonwood Diversion Dam.	PSE	B-168	B-261
Sacramento River at Rio Vista	16	4N/3E-31	۲n	From right bank at pier at upstream side of U.S. Department of Army Installation located about mile downstream from Rio Vista. Tidal gage, located near Administration Bldg. about 1,500 feet downstream from sampling point.	DWR	B-169	B-262
Sacramento River at Sacramento	15	9N/4E-35	٧.	From U.S. Highway 40 bridge (Tower Bridge) water stage recorder located on left bank 0.3 mile upstream from bridge. Composite of three samples.	DWR USGS- WPCB#5 Coop.	B-170	B-262
Sacramento River at Snod- grass Slough	16	6N/4E-27	ν.	At gage on left bank, 2 miles north of Courtland.	DWR	B-174.	

TABLE .B-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

TABLE B-5

SAMPLING STATION DATA CENTRAL VALLEY REGION

on Page		B-262		B-262			B-262
Analysis on Page Mineral Radioassay	B-184	B-187	B-188	B-189	B-190	B-191	B-192
Sampled Bya	USGS	a DWR	DWR	DWR	USBR	. USBI	DWR
Sampling Point	On left bank 150 feet downstream from Fremont Ford Bridge, Merced County, 2.1 miles downstream from Salt Slough, 4.5 miles west of Stevinson, and 6.7 miles upstream from Merced River.	From left bank 100 feet downstream from gage house located 0.5 mile west of Friant and 2 miles downstream from Friant Dam.	From boat landing on left bank near upstream side of bridge on Stockton-Byron Road. Gage located on right bank on Brandts Bridge 5 miles upstream from Garwood Bridge.	From Laird Slough Bridge. Water stage recorder located on bridge near left bank.	At Hills Ferry Bridge, 3.9 miles northeast of Newman.	Left bank, one mile below mouth of False River.	From boat dock on left bank,300 feet upstream from Maze Road Bridge (State Hwy 132), at El Solyo Ranch pump intake. Gage on left bank approximately 0.5 mile upstream from bridge.
Region	rU.	rU.	<i>r</i> v	20	70	20	ru.
Location	75/9E-24	115/215-7	ln/6E-16	45/7E-24	7S/9E-3	2N/3E-6	3S/7E-29
Sta.	25c	73	101	56	25b	28 <b>b</b>	26a
Sampling Station	San Joaquin River at Fremont Ford Bridge	San Joaquin River at Friant	San Joaquin River at Gar- wood Bridge	San Joaquin River near Grayson	San Joaquin River at Hills Ferry Bridge	San Joaquin River at Jersey Point	San Joaquin River at Maze Road Bridge

TABLE B-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled Bya	Analysis on Mineral Radio	s on Page Radioassay
San Joaquin River near Mendota	25	13S/15E-7	rU.	From left bank at foot of gage house, 2.5 miles downstream from Mendota and 4 miles north of Mendota on Bass Road.	DWR	B-193	B-262
San Joaquin River at Merced River	30a	75/9E-3	22	Just upstream from confluence of San Joaquin and Merced Rivers.	USBR	В-194	
San Joaquin River at Mcss-dale Bridge	102	2S/6E-4	ιΛ	From boat landing on left bank just downstream from Mossdale Bridge on U.S.Hwy 50 located about 12 miles south of Stockton and 7 miles northeast of Tracy. Gage located on right bank just downstream from bridge.	DWR	B-195	
San Joaquin River at Patterson Water Company	27a	5S/8E-15	20	At Patterson-Turlock Highway Eridge.	USBR	B-196	
San Joaquin River above Salt Slough	1111	75/10E-26	20	Approximately 5 miles upstream from confluence of San Joaquin River and Salt Slough.	USBR	B-197	
Sen Joaquin River at San Andreas Landing	1126	3N/3E-13	2	Right bank, one mile below mouth of Mokelumne River.	USBR	B-198	
San Joaquin River near Vernalis	27	3S/6E-13	70	From Durham Ferry Highway Bridge located 3.4 miles northeast of Vernalis. Water stage recorder located on left bank on upstream side bridge.	DVR USGS	B-199	B-262
San Joaquin River at West Stanislaus Irrigation Dist.	27b	45/7E-10	بر د	At head of West Stanislaus Irri- gation District intake canal.	USBR	B-200	

SAMPLING STATION DATA CENTRAL VALLEY REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled	Analysis on	s on Page
	No.				By a	Mineral	Radioassay
San Joaquin River at White- nouse	24b	13S/15E-25	٠٠	Below head of Gravelly Ford Canal approximately 13.6 miles upstream from Mendota Dam.	USBR	B-201	
South Honcut Creek near Bangor	06	18N/5E-35	10	Right bank at foot of gage located loc feet upstream from Brown's Valley-Bangor Road Bridge and 2.5 miles southeast of Bangor.	DWR	B-202	
Stanislaus River near mouth	59	3S/7E-17	5	From right bank at foot of gage house. 2.9 miles above the mouth.	DWIR	B-203	B-263
Stanislaus River below Tulloch Dam	29a	1S/12E-1	5	Left bank 0.5 miles below Tulloch Dam.	DWR	B-204	B-263
Stockton Ship Chanrel on Rindge Island	Juo	2N/5E-27	N	From boat landing on right bank of ship channel at southeast corner of Rindge Tract near junction of Fourteen Mile Slough.	DWR	B-205	
Stony Creek near Hamilton City	138	22N/2W-36	<i>7</i> C	From right bank at gage located 2.5 miles southwest of Hamilton City and 8 miles east of Orland.	DWR	B-206	B-263
Tule River near Porterville	91	21S/28E-25	₹	From county road bridge O.1 mile upstream from South Fork and 6 miles east of Porterville water stage recorder on downstream side of bridge across from Bartlett Park.	DWR	B-207	
Tuolumne River below Lon Pedro Dam	31а	38/14E-3	٠	Left bank 0.25 mile downstream from dam.	DMR	B-208	B-263

TABLE B-5
SAMPLING STATION DATA
CENTRAL VALLEY REGION

s on Page Radioassay	B-263	B-263	B-263	B-263
Analysis on Mineral Radio	B-209	B-210	B-211	B-212
Sampled Bya	ŭ	DWR	DWR	DWR
Sampling Point	From Hickman-Waterford Bridge, about 1 mile north of Hickman. Water stage recorder is located on the downstream side of bridge.	From highway bridge on Shiloh Rd. Water stage recorder located on right bank beneath bridge.	At Simpson Lane Bridge at Marys-ville, on left bank. Gage on bridge.	From right bank, 0.5 mile downstream from Highway 20 bridge about 5 miles below Narrows Dam and about 4 miles below confluence of Deer Creek.
Region	<i>7</i> 0	۲۵	2	5
Location	3S/11E-34	45/8E <b>-7</b>	15N/4E-18	16N/6E-30
Sta. No.	30	31	21	218
Sampling Station	Tuolumne River at Hickman- Waterford Eridge	Tuolumne River at Tuolumne City	Yuba River at Marysville	Yuba River near Smartville

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TABLE B-6

TABLE B-6
SAMPLING STATION DATA
LAHONTAN REGION

Analysis on Page Mineral Radioassay	B-265	B-265	B-265	B-265	B-265	B-265	B-265	B-265
Analysis Mineral	B-213	B-214	B-215	B-216	B-217	B-218	B-219	B-220
Sampled Bya	DWR	DWR	DWR	DWR-LA	DW R-LA	DWR	DWR	DWR
Sampling Point	From Connolly's Resort Pier at Bijou.	Upstream from control gates of Truckee River and upstream from State Highway 89.	From pier O.1 mile west of Tahoe Vista and 8 miles northeast of Tahoe City.	From right bank, 100 feet down- stream from confluence of Deep Creek and West Fork of Mojave River.	Left bank at USGS gage, 3 miles northwest of Victorville and 500 feet upstream from U.S. Hwy 66 bridge across Lower Narrows.	From left bank at foot of USGS gage, 0.5 mile west of Susanville and 1.1 mile upstream from Piute Creek.	From left bank at foot of gage 2 miles from California-Nevada State Line on U.S. Highway 40.	From left bank at gage, 1.4 mile upstream from Donner Creek and 2.5 miles southwest of Truckee.
Region	9	9	9	9	9	9	9	9
Location	13N/18E-13	15N/17E-7	16N/17E-14	3N/3W-18	6N/4M-29	30N/12E-31	18N/17E-12	17N/16E-28
Sta. No.	39	38	37	67a	29	175	53	52
Sampling Station	Lake Tahoe at Bijou	Lake Tahoe at Tahoe City	Lake Tahoe at Tahoe Vista	Mojave River at the Forks	Mojave River near Victor- ville	Susan River at Susanville	Truckee River near Farad	Truckee River near Truckee



TABLE B-7
SAMPLING STATION DATA
COLORADO HIVEA BASIN REGION

n Page ioassay	B-267	B-267	B-267	B-267	B-267	B-267
Analysis on Page Wineral Radioassay	B-221	B-222	B-223	B-224	B-225	B-226
Sampled By a	DWR-LA	DWR-LA	DWR-LA	DWR-LA	DWR -LA	DWR -LA
Sampling Point	Left bank 6.2 miles north of West-morland-Calipatria Highway, 0.4 mile downstream from lateral 3-road bridge at Imperial Irrigation District Station AR-17.	Between All American Canal and International Boundary, upstream from canal seepage pipes. Imperia Irrigation District Station AR-1.	Left bank just upstream from Hwy 80 bridge, over canal, 5 miles west of Yuma Bridge. Imperial Irrigation District Station 1035 (lower slope).	At boat dock approximately 0.5 mile downstream from U.S. Highway 60-70 bridge. Sampled from California Side.	From left bank 0.25 mile down- stream from Morelos Dam, Arizona side. The dam is approximately 1.0 mile downstream from California Arizona-Mexico Boundary Junction.	Shore at right bank on California side, 1 mile upstream from USGS gage. 3 miles downstream from Parker Dam. 11 miles northeast of Parker, Arizona. Sampled from River Lodge Boat Dock.
Region	7	7	2	7	2	<i>L</i>
Location	11S/13E-15	17S/16E-18	16S/21E-24	75/23E-2	85/24M-28	2N/27E-16
Sta.	09	59	56a	56c	56b	55
Sampling Station	Alamo River near Calipatria	Alamo River at Internationa Boundary	All American Canal near Pilot Knob	Colorado River near Blythe	Colorado River below Morebs Dam	Colorado River at Parker Bm

TABLE B-7
SAMPLING STATION DATA
COLORADO RIVER BASIN REGION

s on Page Radioassay	B-267	B-267		B-267	B-267	B-267	B-267	B-267
Analysis on Mineral (Radi	B-227	B-228	B-229	B-230	B-231	B-232	B-233	B-234
Sampled By a	DWR-LA	DWR-LA	MMD	DWR-LA	DWR-LA	DWR-LA	DWR-LA	DWR-LA
Sampling Point	At USGS auxiliary gage; right bak California side; on furthest downstream high pressure gas line bridge from Highway 66 bridge.	Left bank at old Highway 80 bridge USGS gage is 0.4 mile downstream from sampling point.	Right bank at the MWD intake, 1.5 mile upstream from Parker Dam.	Right bank at road bridge, 150 yards north of International Boundary. Imperial Irrigation District Station NR-1.	Right bank 50 feet north of Vail Canal, 3 miles west of Calipatria-Westmorland Highway 0.6 mile downstream from Trifolium #10 road bridge. Imperial Irrigation District Station NR-17.	From northeast shore at boat launching ramp of Salton Sea State Park.	Sampled from center of river as flow comes out of road culvert at Lincoln Street crossing.	8 foot Cipoletti Weir 1.6 mile upstream from Whitewater. 2 USGS gages, one on river & one on Weir.
Region	6	-	<u>-</u>	<b>C</b> -	<b>C</b>	6	<u>-</u>	7
Location	7N/24E-7	16S/22E-36	3N/27E-28	17S/14E-14	128/13E-30	78/10E-3	7S/9E-31	3S/3E-2
Sta.	54	95	995	57	58	68a	939	89
Sampling Station	Colorado River at Topock, Arizona	Colorado River at Yuma, Arizona	Lake Havasu at Metropolitan Water District Intake	New River at International Boundary	New River near Westmorland	Salton Sea at Salton Sea State Park	Whitewater River at Mecca	Whitewater River at White- water

TABLE B-8

TABLE B-8
SAMPLING STATION DATA
SANTA ANA REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled	Analysis on	s on Page
	No.				Bya	Mineral	Mineral Radioassay
	98	2S/8W-36	₩	Right bank 20 feet upstream from Pine Avenue bridge approximately 5 miles southeast of Chino.	DWR-LA	B-235	
	68	6S/5W-1	₩	North shore of lake at USGS staff gage, approximately 0.5 mile south of junction of Riverside Drive and State Highway 71.	DWR-LA	B-236	B-269
	51b	1S/2W-4	₩	Southern California Edison Companda Santa Ana River No. 3 power plant tailrace. 3.5 miles northeast of Mentone near mouth of canyon.	DWR-LA	B-237	B-269
	51e	25/7W-36	₩	At USGS summer gage just down- stream from Hammer Avenue bridge on left bank 5 miles north of Corona.	DWR-LA	B-238	B-269
	51a	3S/7W-29	₩	From left bank at USGS gage; 2500 feet downstream from Prado Dam; 4 miles west of Corona and 1 mile southwest of Prado.	DWR-1.A	B-239	B-269
	Sid	2S/5W-30	∞	From left bank, 200 yards upstwam from Metropolitan Water District Aqueduct crossing, and 0.5 mile upstream from Riverside sewage treatment plant.	DWR-LA	B-240	B-269

TABLE B-8
SAMPLING STATION DATA
SANTA ANA REGICN

Analysis on Page Mineral Radioassay	B-269	B-269
Analysi Mineral	В-241	B-242
Sampled By <sup>a</sup>	Ä	DWR-LA
Sampling Point	From right bank near 1SGS gage at "F" street bridge, 0.25 mile north of U.S. Hwy. 99 and 0.4 mile east of Mt. Vernon 1.2 mile east of Colton, 0.3 mile below San Bernardino sewage disposal plant.	From right bank beneath "E" St. bridge, 0.5 mile upstream from San Bernadino sewage disposal plant.
Region	∞	Φ
Location	1S/4W-21	1S/4W-15
Sta.	50.5	\$0 \$
Sampling Station	Warm Creek at Colton	Warm Creek at San Bernar-dino

TABLE B-9

TABLE B-9
SAMPLING STATION DATA
SAN DIEGO REGION

Sampling Station	Sta.	Location	Region	Sampling Point	Sampled By <sup>a</sup>	Analysis on Mineral Radi	s on Page Radioassay
Escondido Creek near Harmony Grove	63	12S/2W-30	6	Sampled from Harmony Grove Road crossing at culvert, 4 miles south of Escondido.	DWR-LA	B-243	B-271
Forester Creek at Mission Gorge Road	65a	15S/1W-28	6	From center of stream just up- stream from Mission Gorge Road.	DWR-LA	B-244	B-271
San Diego River at Old Mission Dam	65	15S/2W-25	6	From left bank just below Old Mission Dam 3 miles west of Santæ	DWR-LA	B-245	B-271
San Dieguito River below San Pasqual Valley	3	138/2E-1	0	From right bank, 75 yards upstrean from USGS gage, 2.5 mile upstream from highway 395 bridge, 4.5 mile southeast of Escondido and 5 miles west of San Pasqual.	DWR-LA	B-246	
San Luis Rey River near Pala	62	98/zM-36	0	From right bank below Pala Diversion Dam and USGS summer gage 1.8 miles east of Pala.	DWR-LA	B-247	B-271
Santa Margarita River near Fallbrook	51c	98/44-12	0	Left bank 2 miles north of Fall- brook and 0.5 miles downstream from Fallbrook Public Utility District gage.	DWR-LA	B-248	B-271
Tia Juana River at Interna- tional Boundary	99	198/2W-1	σ,	From right bank at California Water and Telephone Company gage 2.5 miles upstream from Nestor	DWR-1A	B-249	
a. Dept. of the Interior, Bureau of Reclamation (USBR): Dept. of the Interior.  Army, Corps of Engineers (C of E); State Dept. of Public Health, Bureau of of Fish and Game (F&G); State Dept. of Water Resources (DWR): State Dept. o (DWR-LA); Central Valley Regional Water Pollution Control Board (No. 5) (WP Health (LBFH); City of Los Angeles, Dept. of Public Health (LAFH); City of (LADW&P); and The Metropolitan Water District of Southern California (MWD).	Bureau s (C o State y Regi Los An	of Reclamation E): State Dept Dept. of Water onal Water Pollu geles, Dept. of	(USBR): of Pub Resource tion Con Public H of Sout	Army, Corps of Engineers (C of E); State Dept. of Public Health, Bureau of Sanitary Engineering (BSE): State Dept. of Fish and Game (F&G); State Dept. of Water Resources (DWR): State Dept. of Water Resources, Los Angeles Office (DWR-LA); Central Valley Regional Water Pollution Control Board (No. 5) (WPCB#5): City of Long Beach, Dept. of Public Health (LBPH); City of Los Angeles, Dept. of Public Health (LAPH); City of Los Angeles, Dept. of Public Health (LAPH); City of Los Angeles, Dept. of Southern California (MWD).	Survey (U) ineering urces, Lo of Long B Dept. of	GGS): Dep: (BSE): Ste Angeles each, Dep: Water an	te Dept. Office . of Public



ANALYSES OF SURFACE WATER TABLE B-10

NORTH COASTAL REGION

	Anolyzed by e		USGS		USGS	USGS	USGS	uses	uses	USGS	USGS	USGS	USGS	USGS
	MPN/mt											Median 2.3	Max. 7000	Min. 0.06
	- piq - things		0.5		390	24	1,1	9	0	П	Н	13	2	<b>1</b>
	N CO3		11		0	~	~	1,1	2	10	13	14	#	
	Hordness os CoCO <sub>3</sub> Totol N C		114		96	69	8	76	106	131	134	100	93	67
	sod -		12		=	Ħ	12	10	13	12	12	26	12	13
Total	bts- solved solids in ppm						108				170			
	Other constituents						Fe 0.01 A1 0.08 Cu 0.02 Zn 0.01	FO <sub>1</sub> Coop 1			A1 0.04 P040.00			
	Silico (SiO <sub>2</sub> )		N1				ᆌ	- m1		- MI	77		- NI	-61-
on	Bordn (B)		0,12		η <b>ι.</b> 0	0.01	0.03 0.00	0.08	0.14	0.13	8	0.11	0.02	0.20
per million	Fluo- ride (F)	- P					000		_		0.2			
ports per million equivolents per mil	Ni- trote (NO <sub>S</sub> )						0.00				0.00			
equivo	Chlo- ride (Cl)	NEAR MOCANN STA.	5.9		0.0	2.1	3.5	2.7 0.08	4,14 0.12	6.7	6.0	20	4.5 0.13	3.0
5	Sul - fote (50 <sub>4</sub> )	1					9.6				25 0.52			
constituents	Bicar banote (HCO <sub>3</sub> )	RIVER	126		11.11	80	1.54	1.59	123	1 <sup>1</sup> 47 2,41	148	105	109	11,11
rol con	Corbon- ote (CO <sub>3</sub> )	EE	000		0000	000	0000	000	0000	000	0000	0000	0000	0000
Minerol	Patos- C Sium (K)		0.02		2.5	0.02	1.1	0.02			1.8		I	
	Sodium (No)		7.1	u e	3.3	3.9	5.4	4.6	7.1	8.2	8.9	16	5.8	14.6
	Mogne- sium (Mg)		7.7	Sample brdken	4.5	5.7	6.7	9.5			10			-
	Colcium (Co)		200	Sempl	15	18	21	1,10			37			
	ນຶ່ Ha •		8 <sub>1</sub> 1	7.7	7.4	7.6	7.1	7°t	8.3	8.2	7.9	6.8	7.2	7.8
, in the second	conductonce (micramhos of 25°C)		257 8		122 7	7 471	176 7	178 7	234 8	275 8	294 7	281 6	207 7	142 7
			103	126	112	118	108	100	96	115	78	96	103	104
	Dissolved oxygen ppm %So		2.8	15.0	2.2	11.4	10.0	0.6	8.6	6.6	7.2	9.6	11.6	50 11.8
			143 12.8	146	53 1	63 1	67 1	2	72	74	99	62	51 1	50
	Dischorge Temp in cfs in aF		Not											
	Dote ond time sompled	1957	1/8	2/5 1400	3/5	1350	5/7	1,900	7/9	8/6	9/11	10/18	11/5	12/17

o Iron (Fe), oluminum (AI), oreanc (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{90}{0.00}$  except as shown. Determined by addition of analyzed constituents

c Gravimetric determination.

d Annuol medion and range, respectively Calcuided from analyses of duplicate monthly samples mode by Calif. Deat of Public Health, Division of Laborateries.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angelee Dept. of Water (LADWP), City of Loe Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (OWR), as indicated

f Field pH except when noted with a

ANALYSES OF SURFACE WATER
NORTH COASTAL REGION

	Anolyzed by e		DS GS		OSGS	USGS	SGS	OSGS	SGS	nses	SSS	nses	USGS	USGS
	MPN/mi						_		<u> </u>	<u>P</u>		Median U	7000.	Min. U
,	- Pid - Ati		-		3%	8	3.1	25	-	7	2	27 1	61	720
	N COS		7		<u>س</u>	20	10	50	0	12	0	18	61	
			116		80	78	76	88	110	# #	142	100	95	8
	200 En-		15		13	13	7,1	13	7,	12	nt.	26	16	16
Total	best solids in ppm						127				180			
	Other constituents					i i	Zn 0.01; As 0.01 Fe 0.01; Pq 0.15	ಪ			PO1,0.05;A1 0.06			
	Silica (\$0:0 <b>2</b> )					1174	킈				21			
lion	Boron (B)		0.12		0.14	0.0	0000	0.09	0.11	0.07	0.23	0.14	0.12	0-17
per mil	Fluo- ride (F)	9					0.01				0.03			
ports per equivalents p	200	SCOTIA (STA					0.01				000			
inba	Chlo- ride (Cl)	AT SCOT	7.2		1.8	3.5	4.0	3.8	6.1	5.5	6.2	8 %	5.5	4.5 0.13
5	Sul - fote (SO <sub>a</sub> )	RIVER					15				12 0.25			
constituents	Bicor- bonofe (HCO <sub>3</sub> )	EEL R	2.18		1,10	1.57	108	101	13 <sup>4</sup>	161 2.64	17 <sup>4</sup> 2.85	100	1.87	64 1.05
	Corbon- ote (CO <sub>3</sub> )		0000	Destroyed	000	000	000	0000	000	000	000	0000	0000	00.00
Mineral	Potas- Srum (K)		0.02		2.5	1.1	1.0	0.02			1.8			
	Sadium (Na)		14°0	Semple	4.3	5.9	0.30	6.1	8.6	9.2	11	16	8.0	5.4 0.23
	Magne- stum (Mg)		8.1		200	7.7	8.3	7.4		•	12 0.99		-	
	Colcium (Co)		33		25.0	21	1.20	23		-	1.85			
	표 🛶		7.9	7.8	7.6	6.9	7-1	7.5	8.3	8.2	0 0	6.9	7.4	7.8
0	conductonce (micrombos at 25°C)		265		128	183	208	187	246	279	307	282	219	138
	- 6		100	126	119	103	127	104	102	120	47	R	103	102
	Dissolved osygen ppm %Sc		12,4 100	14:8 126	13.0 119	10.0	11.4 127	9°6 10#	9.5	10.8	6.8	9.6	11.6	11.6 102
	Te ap		<sub>1</sub>	4	53	63	R	89	2	R	89	62	Ľ.	R
	Discharge Te		1450	2100	55,300	9000			295	280	130	4160 62	1510	22,500
	Dote ond time sampled	1957	178	2/5	3/5	1630 1630	5/7	6/4 2035	7/9	8/6 1330	9/11	10/18	11/5	12/17

o Iron (Fe), oluminum (A1), organic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as 200 except as shawn.

b Determined by addition of analyzed constituents.

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† Field by except when noted with a

\* Mineral Construction and a provided USCS), Positio Chamical Consultent (PCC), Matemposition Water District (MWD), Las Angeles District (MWD), City of Las Angeles District (MWD), Las Angeles Distri ANALYSES OF SURFACE WATER TABLE B-10

NORTH COASTAL REGION

	Anolyzed by e			USGS		USGS	usgs	USGS	uses	USGS	nsos	USGS	USGS	USGS	USGS
	bid - Coliform d												Median 6.2	Max. 2400	Min. 0.23
	Pid -			~		100g	16	7.1	2	-	2	-	22	-	0C+1
	000	D E dd		0		#	0	-	~	0	7	0	0	0	
		Total		8		39	95	89	73	82	107	110	70	78	6η
	Cent cent sad -			16		17	17	17	16	6	16	18	16	17	20
1	solved solids	م م د						100				150			
	Other constituents							71 0.06 Gu 0.02 Fe 0.01 Zn 0.01	Pol <sub>t</sub> 0,10			POL 0.00 A10.05 150			
١,	Silico	OIC)		<u> </u>		01	8	17		61	<u> </u>	13	m.l	1	ml
001111	Boron		2	0.1		0.12	0.02	0.00	0.01	0.09	0.09	0.18	0.08	0.07	0.18
r million	Flug-	(F)	A (ST)					0.0 0.2				0.03			
		(ND3)	(RAND					000				0.00			
ports pe	Chio-	_	, NEAR MIRANDA (STA.	6.8		1.5	3.8	4.5	4.0	5.1	7.2	6.2	3.8	6.5	0.11
Ē	Sul -	Sp.)	PORK					7.7				9.6	,		
constituents	Bicor - S		SOUTH	111		43	71	1.340	1.39	108	122	144 2.36 0.	1,41	96	54
Mineral cons		(00)	EEL RIVER.	00.00	ō	00.00	00.00	00.00	0000	00.00	0000	0000	00.00	00.00	0000
M	Patos-	ξ	EEL	0.02	destroyed	0.08	0.02	0.02	0.02	1		1.6			
	Sadium			8.0		4.0	5.5	6.5	6.5	3.9	9.2	11	6.2	7.7	5.5
	Mogne- Srum			0.60	sempl.	7.4	5.2	5.6	0.560	10	10	0.90	10	- 10	10
	Colcium			2 <sup>t</sup>		8.4	14 0.70	0.90	0.0			26			
-	H <sub>0</sub>	64		1 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	7.8	7.5	7.3	7-1	7.3	7.3	7.2	7.9	7°t	7.4	7.7
		- 1			7		-								
	Conductonce (micrombos			209		85	132	156	154	193	237	247	169	180	116
		%Sot		98	126	112	109	104	9.2 106	88	114	K	η6	93	100
	Dissolved	Edd		41 12.6	14.8	52 12.4 112	60 10.9 109	9.8	9.5	8.0	10.0	9.9	4.6	10.8	50 11.4 100
	Temp in aF			#	4			99	74	69	72	67	8	<u>\$</u>	1
	Discharge Temp			138	1100	14,300	1560	800	855	200	130	72	2120	192	3680
	Dote ond time sompled		1957	1/8 0940	2/5	3/5	4/2 1215	5/7	6/4 1745	7/9	8/6 1045	9/11	10/15	11/5	12/17

o Iron (Fe), oluminum (AI), orsanic (As), capper (Cu), lead (Pb), mangansse (Mn), zinc (Zn), and chromium (Gr), reported here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by addition of analyzed constituents c Gravimetric determination.

d Annual median and range, respectively Colculoted from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Labardovies.

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f Field pH except when nated with e-

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER NORTH COASTAL REGION B-10

	Anolyzed by e		nses	uses	nscs	uses	uses	USGS	nses	usgs	uses	USGS	uses	uses
	Coliform d MPN/ml											Medien 2400	7000	2.3
1	pid 11y In ppin		2	2	20	17	m	0.9	٦	-	п	-	10	2
	Hardness os CoCO <sub>3</sub> Total N C		0	0	0	0	0	0	0	0	0	0	0	0
	1 1		96	145	96	58	73	53	52	62	20	54	99	58
	sod –		33	32	33	35	<b>&amp;</b>	35	35	34	36	39	43	142
Tatol	Salved solids in ppm						162				130			
	Other constituents						Zn 0.03 Cu 0.01 Fe 0.11 Al 0.50	FO <sub>1</sub> 0.45			Fe 0.04 Al 0.13 130 POL 0.10			
	(Silica		91	©	N	<del>4</del> 1	1 25	91	φ.	ω	7 7	~	01	2
million per million	Boron (B)		0.06	0.08	0.05	0°0	30.01	90.0	0.08	0.08	7000	0.13	0.00	0.15
parts per million volents per mil	Fluo- ride (F)	7					0.0				0.01			
rts per	trote (NO <sub>3</sub> )	STA					2.3				5.4			
parts p	Chlo- ride (Ci)	NEAR COPCD (STA	3.6	1.5	1.5	3.4	3.5	3.0	2.9	3.0	3.6	3.3	5.0	4.5 0.13
ē	Sui - fate (S.D.)						35				8.3			
constituents	Bicor- bonote (HCD <sub>3</sub> )	1 RIVER	74	65	1.18	72 1.18	9 <sup>t</sup>	84 1.38	7 <sup>4</sup>	1,41	76	86 1.41	1000	1.44
consti	1	KLAMATH	0.00	0000	0.00	0.00	0000	0000	0000	0.00	0000		0.00	0000
Mineral	Corban- ate (CO <sub>3</sub> )	7	1	110	1	NO.	1		o	0	-	0000	0	0
≥	Potas- Sium (X)		2.3	1.9	2.4	2.4	3.4	2.6			3.0			
	Sadium (No)		16	100	13	15	22 0.96	15	13	15	14	16	23	19
	Magne- sium (Mg)		5.7	5.1	6.9	6.2	99	5.6			4.7			
	M (c		050	loo	0.55 0.	150	ls.	12			18			
	Colcium (Co)													
-	₩ <b>%</b>		*7.1	*7.6	× 7 • 0	*7.7	*7.5	*7.t	*7°4	*7.9	\$7.0	*7.8	4.9	4.9
0111000	conductance (micramhos		190	127	167	177	240	179	161	167	163	188	241	198
			62	89	79	69	75	110	95	100	98		<u> </u>	- 64
	Dissolved oxygen ppm %Sa		8.6	9.2	9.2	7.9	7.6 7	9.6	6.9	8 8	7.9		8-6-6	10.3 79
	e E		35 8	37 9	6 84	7 94	59 7	70 -	99	72 8	68 7	95	h3 9	9
	Discharge Te		3330	3670	3500 4	3430 4	3330 5	3330 7	1630 6	1510 7	2340 6	2980 5	3500	3360 4
	Dote ond time sampled	1957	1/10	2/7 1400	3/4	4/10 1200	5/7	6/4 1500	7/18	8/12 1500	9/18	10/9	11/19	12/11

o Iron (Fe), aluminum (AI), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annuol median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labarateries.

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mical Cansultant (PCC), Metrapatitan Water Dietr Resources (DWA), as Indicated

Long Beach Dept of Pub Medith (LBDPH) or State Department of Water . Tield off water when noted with a

HIMWO), Las Angeles Dept. of Woter & Power (LADWP), Gity of Los Angeles Dept of Pub Health (LADPH),

NORTH COASTAL REGION

		Anolyzed by a			USGS		nscs	USGS	uses	uses	USGS	USGS	uses	uses	USGS	uses
		MPN/mi												Median 22	Max. 2400	Min. 0.21
	Tur-	- bid - th n ppm			2		50	12	3.4	15	0,3	-	7	12	2	55
		N C DA			0		~	<b>~</b>		2	С	~	0	С	0	0
					89		18	09	26	η9	68	8	78	59	75	28
	Per	sod – tum			23		28	20	17	14	17	21	23	20	24	26
	Total	solved solids in ppm							35				137			
		Other canstituents							Pb 0.01 Zn 0.02	AI U.U. PULU. 3)		q	Fe 0.01 A1 0.06 Pb 0.01 PO <sub>1,0.35</sub>	ď		
		(SiD <sub>2</sub> )			101				15				29	N.1		
, L	illian	Baran (B)			0.05		40.0	000	00.00	000	40.0	000	0.17	0.07	00.00	0.11
allie.	per m	Flua- ride (F)	6						0.01				0.0			
parts per million	shis	Ni- frate (NO <sub>3</sub> )	(دىد						0.00				1.3			
par	equivalents per millian	Chia- ride (Ci)	מש) השיאית נה מ	W.W.W.	4.6		3.0	2.6	3.0	ц.3 0.12	3.6	5.0	4.7 0.13	μ.0 0.11	5.0	4.5
	٩	Sul - fate (SO <sub>4</sub> )	0						8.6				9.6			
	stituents	Bicor – bonofe (HCD <sub>3</sub> )	021110 11		86 1.41		18	72	1.10	76	84	94	110	84	101	0.51
	Minaral canstituents	Carban- ate (CO <sub>3</sub> )	2	N. W. W.	00.00		0.00	00.00	0.00	00.00	0.00	00.00	0.00	00.00	000	0000
	Σ	Palas- sium (K)			1.3		0.02	0.02	0.7	0.7			2.2			
		Sadium (Na)			9.5	ken	3.4	7.2	5.6	4.8 0.21	6.1	9.6	11 0.48	7.7	11 0,48	4.5 0.20
		Magne- sium (Mg)			6.8	Sample broken	1.9	7.2	6.3	7.1			9.2			
		Calcium (Ca)			16	Sam	4.0	12	12	14			16			
		표 44			7.6	7.5	7.3	9.9	7.2	7.0	8.1	7.8	7.9	7.9	7.2	7.4
	Specific	conductance (micromhas at 25°C)			178		47.1	143	129	140	157	178	197	165	198	72.5
					100	106	118	95	106	93	81	100	105	96	87	101
		Dissalved oxygen ppm 0%Sc			43 12.4 100	13.4 106	12.6	10.0	10.6	8.6	7°h	9.2	9.6 105	10.4	10.0	11.6 101
-					43 1	η 2 <b>1</b>	55 1	56 1	60 1	49	89		69	54 ]	h9 1	169 1
		Discharge Temp in cfs in aF			7300	0096	73,400	31,800	20,300	14,300	2790	4370	5030	7300	7050	41,600
		Date and time sampled		1957	1/9 1540	2/7	3/7	0660	5/9 1520	9/9	7/11	8/8 1315	9/11	10/17	11/7	12/18

a Iran (Fa), aluminum (AI), arsanc (Aa), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{00}{500}$  except as shown. Distermined by addition of analyzed constituents

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ANALYSES OF SURFACE WATER NORTH COASTAL REGION TABLE B-10

	Anolyzed by e						uses	0368	0.565	U3GS	USGS	USGS	USGS			
	bid - Coliform d											Median 6,2	2400	Min. 0.045		
	Tur- bid- ify In ppm						2,1	-	0.	7	8	3	<b>=</b>			
	0000 N C						0	0		0	C	0	0			
							54	63	99	77	74	63	14			
	Sod -						22	15	22	27	<u>2</u>	28	31			
3	Solved solids in ppm						8				152					
	Other constituents				6		Cu 0.03 Zn 0.02 Fe 0.04 Al 0.03	Put 3-15 &			Fe 0.03 A1 0.06 POH 0.45					
	(S11.ca						00.00	-01			36					
0	Boron (B)						0	00.00	0.07	0.03	0.19	0,10	00.00			
ports per million	Fluo- ride (F)	1, 2)					0.01				0.0					
9	1	R (ST)					0.0				2.0					
ports p	Chlo- ride (Ci)	SOMESBAR (STA					2.0	2.5	3.3	0,11	4.3	μ.0 0.11	6.0			
Ē	Sul - fore (SO <sub>4</sub> )	ER AT					11				11					
constituents	Bicar – S banate (HCO <sub>3</sub> )	ATH RIVER					1.13	99	86 1.41	1.44	108	88	104			
Mineral con	Corbon- ote (CO <sub>3</sub> )	KLAMATH					00.00	0000	0000	00.00	00.00	0.00	0000			
M	Patas- sium (K)						1.4	1.1			2.9					
	Sodium (No)			broken			7.3	5.0	8.2	12 0.52	15	11	16			
	Magne- sum (Mg)						5.8 0.48	7.4			4.0					
	(o)			Sample											<u> </u>	
	Calcium (Ca)						9 12 0.60	3 13		9	9 23	6	- 7			_
	hos pH			7.6			6.9	7.3	<b>1</b> € 8	7.6	7.9	7.9	7.2			
	Specific conductance (micromhas at 25°C)						137	12 <sup>4</sup>	162	175	196	175	218			
				112			103	104	105	114	116	107	100			
	Dissolved oxygen ppm %50			13.4			56 10.8	9.6	9.0	70 10.2	10.2	55 11.4	11.6			
	Temp in oF		puno	947	ound	puno		89	75	70	72 ]	55	148	puno		
	Discharge Temp		Snowbound	5150	Snowbound	Snowbound	10,800	9280	2940	2300	2830	9000	Othti	Snowbound		
	Date and time sampled	1957	Jan.	2/6 1440	Mare	April	5/10	6/5	7/10	8/7	9/12	10/16	11/6	Dec.		

o Iron (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{60}{2000}$  except as shown.

b Determined by addition of analyzed constituents

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B-46

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NORTH COASTAL REGION

		Anolyzed by e		USGS	nses	usgs	USGS	USGS	USGS	USGS	USGS	USGS	USGS	usgs	uses		
	•	de Cocos 11y MPN/mi as Cocos 11y MPN/mi fotol N C													Median 23	7,000 Min.	
	- Jn	- prd - Ify In ppm		8	9	10	17		m	2	H	2	20		50		
		0000 N C		0	m	#	<b>=</b>	0	~	0	<u> </u>	0	0	0			
L		l'		142	126	6	123	115	120	130	137	128	93	120	103		
-	ď	100 E		18	16	<b>1</b>	71	77.	# #	71	17	16	13	15			
	Totol	solved solids in ppm						155				0.07 165 16					
		Other constituents						Fe 0.01 A1 0.06				PO1 0.00 A1 0.0					
		(SiO2)		जा	<u> </u>	ai	iol	212	aut.	51		81	101				
	Hion	Baron (B)	Si Si	8.0	0.58	0.21	0.25	0.29	0.32	0.47	0.51	0.52	0.35	11,0	0.51		
oillio	per million	Flug- ride (F)	ST.					0.01				0.3					
ports per million		Ni- trote (ND g)	VILLI					10.0				0.00					00
	equivolents	Chlo-	AT GUERNEVILLE (STA	0.31	9.0	5.0	6.0	6.0	6.0	6.0	6.2	4.5	6.5	7.5	11 0.31		
	Ē	Sut - fore (SO <sub>e</sub> )	1 1					12				5.8					1
	constituents	Bicor- bonote (HCO <sub>3</sub> )	RUSSIAN RIVER	2.92	150 2.46	113	136	140	144	165	164 2.69	166	114	148 2.43	121		
		Carbon- ote (CO <sub>3</sub> )	RUS	0000	0000	0000	0000	0000	000	0000	0000	0000	000	0.00	0000		
	Mineral	Potos- Sium (X)		0.03	1.3	1.7		1.0	0.03			1.6			,0		] :
		Sadium (No)		14 1	0.48	7.6	9.6 0.42 0.03	8.9	8.9	9.9	010	0。 根	9.6	0.10	12 0.52		
		Mogne- S. sum (Mg)	+	1.29 0.	15 0.	13 1.04	1.21	13 8	13 8	90	<u>ارا</u>	1.310	10	0	10		
1	1	Colcium Mo		T	1		25 1	25 1	26 1 1.30 1.			1.25 1					
1	_		-	0 31		7 18					∞	7-7	7.4	7.3	7.4		10,1
ŀ	ñ	Ho C)	-	8.0	7.6	7-7	7.2	6.9	7.3	7.8	7.8	7	7		7		
	Specif	conductions (micrombos of 25°C)		323	281	218	252	254	256	288	291	279	226	272	251		07
1		-		98	98	72	107	75	93	85	98	89		75	# 1		
		Dissolved oxygen ppm %Sc		10.0	11.4	7.6	11.0	8.9	8.0	7.2	7.3	೦• ಬ		7.8	±. 1		
		Temp in OF		9	8	56	58	65	7.	2/2	92	2		57	53		3
		Dischorge in cfs		909	837	5110	1430	980	1060	254	146	136	2250	716	1470		
		Dote ond time sompled	1957	1/7 0920	2/4 0900	3/4	4/1 0825	5/6	5/3	7/8	8/5 0810	9/10	10/16	11/4	12/16		

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NORTH COASTAL REGION

	Analyzed by e		USGS	USGS	USGS	USGS	usgs	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
	MPN/mi											Median 62	Max. 7000	Min. 0.21	
	Tur- bid- ty- mppn		5	00	&	<b>1</b> π	3.1	٦	-	-	7	&	6	150	
	S COS S COS S COS		0	7	8	2	8	<u>~</u>	0	0	0	<u> </u>	0		
			137	120	98	118	115	118	124	124	122	72	120	82	
	Sod -		15	15	15	13	13	15	14	1,1	13	16	114	15	
	Solved Solved Solids in ppm						151				153				
	Other constituents					20 014	Pou 02 Zn0.02				PO10 00 410 05				
	(Si11.co			<b>31</b>	0/1	6/1	18	-71	जा	<b>α</b> Ο1	18	N	<i>2</i> 1	- <del>a</del> oi	
c	Boron (B)	ন	0.94	19.0	0.29	0.33	0.28	0.34	0.54	0.58	0.54	<b>Q.</b> 27	0-34	0 38	
m.Ilio	Fluo-Borr	(STA.					0.0				0.01				
1 5		URG (					0.5				0.2 0.2				
lod	Chio- Ni-	R HEALDSBURG	7.2	2.3	3.7 0.10	\$1±	5.0	4.5 0.13	0.16	6.0	5.5	3-7	5.5	0.11	
<u> </u>	Sul - fate (SD <sub>4</sub> )	NEAR					12				2.9				
constituents	Bicor- bonote (HCO <sub>3</sub> )	RIVER	173 2.84	2.38	103	138	138	140 2,29	157	156	156	1.43	2.39	35	
Mineral cons	Corbon- ote (CO <sub>3</sub> )	RUSSIAN	00.00	0000	0000	0000	000	0000	0000	0000	0000	0000	0000	00.00	
M.	sium (K)		0.02	1.0	1000	0.05	0.02	1.6			1.4				
	Sodium P (No)		11 0 48	010	8.90	8 H 0	7.80	9.6	25.	9.42	0.38	6.1	8.7 0.38	0.90	
	Mogne- So sium (Mg)		1.14 1.18 0	13	0.87	1.12 C	13 (	13			15 8		~ 6		
	Colcium (Co)		1.55	1.30	0.85	25	25	1.30			2 <sup>t</sup>		***		
-			8.2	7.7	7.6	7.1	7-1	7.4	<b>₹</b> •8	7-3	7.8	7.3	7.3	7.8	
-	0.		305										259 7.		
	Specific conductonce (micrombos of 25°C)			266	191	251	243	247	275	267	258	169	25	130	
			103	114	114	011	93	110	16	18	93	79	87	8	
	Disso		12.0	13.2	12.2	10.9	0.6	9.5	8.4	7.4	8.4	7.8	9.3	9.6	
	Te of		848	 약	55		63	47	74	72	R	62	55	55	
	Discharge in cfs		158	355	3620	1060 61	760 63	46 098	185 74	180 72	140	4540 62	989	2160	
	Date ond time sompled	1957	1/7	2/4 1035	3/4	4/1 1320	5/6	6/3	7/8	8/5	9/10	1700	11/4	12/16	

o Iron (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as ehown.

b Datermined by addition of analyzed constituents. c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept at Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Woter Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LADPH) or State Department of Water Resources (DWR), as indicated

MATER OF SHEET WATER

f Field pH except when noted with a

iran Water District (MWD), Las Angeles Dept of Woter is Rower (L.A.D.W.F), Gity of Los Angeles Dept of Fub Health (L.A.D.PH),

NORTH COASTAL REGION

		Anolyzed by e			uses	USGS	usgs	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
	,	Coliform MPN/ml												Median 62	Max. 7000	Min. 1.3	
	Tur	bid -			9.	20	55	10	3.4	П	0.8	2	9	13	8	275	
		3CO3	N Ppg		0	7	0	6	~	12	0	2	0	0	0		
			Total		110	95	89	92	83	46	8	85	₩8	78	48	99	
	Dog	sod -	- 1		19	19	17	17	1,†	14	16	14	17	17	16	18	
	Totol	solved solids	n pp.	 					1114				111				
		Other constituents							A1 0.07 Cu0.08				POt 0.05				
		Silica	<b>1</b> 010						16		104		7,				
c	Hion	Boron		 - Tr	8	0.52	200	0.19	0.18	0.26	0.25	0,23	633	91	0.32	9	
a ilio	per million	Fluo-	(F)	4 8A					0.2				0.1				
ports per million		Ni-	(NO s)	ID (ST					0.6 0.2 0.01 0.01				000				
	equivolents	Chlo-	(i)	RUSSIAN RIVER NEAR HOPLAND (STA.	0.20	8.0	2.7 0.08	5.2	0.11	3.5	3.8	3.8	3.7	0.11.0	5.5	4.0 0.11	
200	٥	Sul -	(80%)	ER N					2.6				0.02				
Turiou Turiou	constituents	Bicor-	(нсо <sub>3</sub> )	AN RIV	142 2.33	115	1.36	108	28	100	104	98	11.84	96	107	78 1-28	
	Mineral co.	Carbon	(co)	RUSS	0000	0000	000	0000	0000	0000	0000	0000	00.00	0000	00.00	0000	
	Min	4	Œ		0.02	0.02	1.4	0.00	0.0	0.07			1.1				
		Sodium	(0.8)		12 0.52	915	6.4 1.4 0.28 0.04	8.4	0.28	999	7.2	6.5	7.8	2.4 0.32	2.1	6.4 0.28	
		,	(Mg)		0.85	25.0	9.2	0.84	8.0	10			8.9				
		Coleium	(00)		1.35	1.10	12	1 00	200	21 1.05 0.83			19				
		I	•	 	8°1	7.6	7.5	8.9	6.9	7-3	80	0	7.7	7.3	7.4	7.7	
	Specific	(micromhos			274	224	153	205	183	183	188	173	186	185	191	147	
			%Sot		117	112	113	100	100	112	100	105	103	81	76	93	
		Dissolved	m@d		0°41	13.2	12.2	10.0	9.8	9.8	80	9.6	9.6	4.8	0.0	10.0	
		Te mp				147	±5	8	, , ,	72	4	60	67	24	25	55	
		Dischorge Temp			286 46	200	1600	620	510	490 72	170 14	184 69	17067	11567	370	2000	
		and time sompled		1957	1/7	2/4 1145	3/4	4/1 1515	5/6 1240	6/3	7/8	8/5 1320	9/10	10/15	1300	12/16	

a Iron (Fe), aluminum (A1), arsenic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except on shown.

b Determined by addition of analyzed constituents

c Gravimetric determination,

d Annual median and range, respectively. Calculated from analysse of duplicate marthly samples made by Calif. Dept of Public Health, Division of Lobaratories.

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\* Field pH except when noted with e-

ANALYSES OF SURFACE WATER NORTH COASTAL REGION TABLE B-10

	Analyzed by 6		USGS	USGS	USGS	uses	uscs	USGS	JSG <b>S</b>	USGS	USGS	uses	USGS	uses	
•	MPN/mi													230 Max. 7,000	6.2
7	bid - ty npgm		<b>≒</b> 0	22	골	62	5.7	20	~	ω_	7	20	Н	150	
	N CO3		0	0	m	∞	-	7	0	-	0	0	0		
	Hard as Co Total		108	8	3	110	80	98	75	73	74	82	80	73	
o o	Cent Cent Ead -		18	18	19	18	15	15	16	15	2 13	17	16	16	
Total	Solved solids in pom						106				102				
	Other constituents						Fe 0.01 A1 0.03 POlt 0.10 Cu 0.02				A1 0.05 Zn 0.01	á			
	Silica (SiO <sub>2</sub> )						퀴			101	쿼	-21	- 1		
Hian	Boron (B)	8	0.89	0.51	0.15	0.15	0.17	D-27	0.31	0.25	0.30	0.38	0.27	0.27	
ports per million valents per millian	Fluo- ride (F)	1 1					0.0				0.01				
5 I		N (S	,				0.0				00.0				$\Box$
equivalents	Chia- ride (CI)	NEAR UKIAH (STA.	6.9	6.5	3.7	7.7	3.0	4.3	3.5	30.08	3.7	4.0 0.11	11.0	3.5	
č	Sul - fate (SO <sub>4</sub> )	IVER					9.6				5.2				
canstituents	Bicar S banate (HCO <sub>3</sub> )	RUSSIAN RIVER	2.31	11.2	70	125	24 0	1.57	1.56	88 1-44	1.54	102	102	92	
	Carban B	RUS	0000	0000	0000	0000	0000	0000	000	0 8	00.00	0000	000		
Mineral	Potos- Co Slum (K)	-				- 4	0.01	0.00	10	10	1.2	<u> </u> 0	10	lo	$\dashv$
	Po G	-	0.02	0.8	0000	1.2 18 0.03		<u> </u>	5962	8 10	220	청	~[8	, po	-
	Sadium (Na)	-	11 0.43	9.2 0.40	6.9	2 11 2	6.2	0.30	6.6	5.8	5.0	7.9	6.8	6.4	
	Magne- sium (Mg)		9.2	8.5	6.1	0.80	0.61	9.4			6.0		_		
	Colcium (Co)		1.40	22 1-10	14	1.40	19	19			808				
	I •	1	ω	7.6	7.6	7.3	7.1	7.2	8.3	8,1	7.8	7.5	7.2	7.7	
21,1200	Ø #0		250 7	211	149	254	175	174	173	158	געו	193	181	153	
- 7	÷	-	86	117				- 6	95	107	1001			1001	
	Dissolved oxygen ppm %Sc	-		13.8	0.	12.0 124	9.8 101	8.7	8 0 8	9.8		8 95	96 0:		
	age de	-	中 12.0	113	54 12.0	63 12	63				8 8 8	9.8	0.01 7	10.8	
	ge Ten			and .		9	9	70	4		72	- 58	57	27	
	Discharge Te		Not												
	Date and time sampled	1957	1/7	2/4 1330	3/4	1/4	5/6 1345	5411 11/9	7/8	1,400	9/10	10/15	11/4	12/16	

a Iran (Fe), aluminum (AI), oreanic (A3), copper (Cu), lead (Pb), monganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown. b Determined by addition of analyzed canstituents.

c Grovimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Loboratories.

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f Field pH except when noted with a

ANALYSES OF SURFACE WATER NORTH COASTAL REGION TABLE B-10

Legues) or Store Deportment of Worker Resources (DWN), the Indicated Charles District (MWD), Las Angeles Dept of Mark District (I ADWR), City of Las Angeles Dept of Pub Hearth (LADFIN)

	D		,												
	Anolyzed by e		USGS			USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
	Caliform d MPN/mi											Median 136	Max. 7000	Min. 2.3	
	D - Pid - Pi		9.0			17	1.9	8	8	8	~	11	7	96	
	N COS		0			2	~	#	0	12	0	0	0	0	
	Hordness as CaCO <sub>3</sub> Total N C		105			35	ĸ	75	ĸ	83	74	74	77	20	
	add -		15			7.	13	<b>1</b> 1	15	12	15	16	<b>†</b> 1	18	
Total	solved salids in ppm						100				108			*	
	Other constituents						A1 0.08	to t			A1 0.05 Pb 0.01				
millian per millian		NEAR CALPELLA (STA 8)	0.73			0,02	0.03 0.15 16	0.22	0.28	0.18	0.2 0.36 15	0.39	0.27	0.33	
ports per millian		AR CAL					0.00				000				
e du	Chlo-ride (CI)	FORK, NE	6.4			3.0	2.5	3.0	0.08	3.0	3.0	3.3	5.0	0.06	
Ē	Sul - fate (SO <sub>4</sub> )	EAST F					9.6				12 0.25				
constituents	Bicar - S bonate (HCO <sub>3</sub> ) (		136		<del></del>	38	1.36	87	1.44	1.43	1.51	94	1.54	86 1.41	
	Carban - B	RUSSIAN RIVER,	0000	-		0000	00.00	0000	00.00	0000	00.0	00.00	00.00	00.00	
Minsral	Potas- Skum (K)	RUSSI	0.0	TD.	Đ	0.02	0.00	0.02			1.2				
	Sadium (Na)		8.7	sample destroyed	sample destroyed	6.5	4.9	5.5	5.6	5.3	6.2	6.7	6.0	0.31	
	Magne- sium (Mg)		8.6	p eldm	p eldm	8.4	6.3	0.60			0.58				
	Caterum (Ca)		28 1.40	60	40	20	18	18			18				
-	T 44		8.1	7.9	7.9	7.0	7.2	7.4	9 8	7.4	8.3	8.0	7.3	7.6	
20000	conductonce (micrambos of 25°C)		236	, ,	, ,	181	156 7	158	161	154 /	167	176	177	167	
	1 = 1		90	21	23	98	03	80	100	10	40	90	87	95	
	Dissolved asygen ppm %SG		43 13,2 106	17, 14, 4 121	53 13,4 123	10.3	61 10.2 103	801 0.01 69	8.8	10.2 110	9.2 104	901 9.01 09	9.3		
			13	H6 114	53 13	56 10	10	57 10	72 8	67 10	72 9	9	55 9	50 10.8	
	Dischorge Temp in cfs in 9F		108	-		229	329	310	565 7	280	130 7	4160	1510	22,500	
	Date and time sampled	1957	1/7	2/4 1540	3/4 1550	1,4/1	5/6	6/3	7/8	8/5 1545	9/10	10/15	11/4	12/16	

o Iron (Fe), oluminum (AI), arsenic (Ag), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported hare as  $\frac{00}{0.00}$  except as chown. b Determined by addition of analyzed constituents.

c Gravimetric determination,

d Annual median and range, respectively Calculoted from analyses of duplicate monthly samples mode by Colif. Dept of Public Health, Division of Laborotesties.

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ANALYSES OF SURFACE WATER

NORTH COASTAL REGION

	Analyzed by e		uses	USGS	nsgs	USGS	USGS	nses	JSGS	USGS	DSC2	05GS	USGS	USGS
	MPN/ml													Median 6.2 Hax. 7,000 Min.
1	- bid - ty n ppg		٠. د د	8	55	29	2	2	2	N	7	19	6	100
	N COS		0	8	0	0	0	9	2	-	0	0	0	
	Hardness as CaCO <sub>3</sub> Total N C ppm ppm		102	82	65	179	99	69	99	65	70	73	74	56
	sod -		14	17	15	15	14	12	13	13	12	17	<b>1</b> 1	
Totol	Solved solids in ppm						2				98			
	Other constituents	HOUSE (STA. 10A)					10 FOL 0.00 Fe 0.01 A1 0.03				4 Pou 0.05 Fe 0.01			
per millian	Baran Silica (B) (\$10 <sub>2</sub> )	POWER HO	0.72	0.56	0.24	0.21	0.23	0.20	0.19	0.16	1 0.30 14	0.42	0.23	0.42
10	hi- trate ride (NO <sub>9</sub> ) (F)	AT POTTER VALLEY					0.3 0.1				0 000			0 62 2.2 0.42 0.00 1.02 0.06
parts p	Chlo- ride (Cl)	AT POTTE	5.8	5.2	1.1	2.0	2.3	2.2	2.1	2.8	3.0	3.5	14.2	0.06
5	Sut - fate (SO <sub>4</sub> )	ORK,					5.8				2.1			
constituents	Bicar- banote (HCO <sub>3</sub> )	EAST P	129	98	1.29	73	1.21	77	78	78	1.43	1.51	81.	1.02
Mineral con	Carbon- ate (CO <sub>3</sub> )	RIVER,	0000	00.00	00.00	00.00	0000	00.00	0000	000	0000	0000	0000	0000
E	Pates- sium (K)	1 1	0.6	0.02	1000	0.03	0.0	0.01			1.2			
	Sadium (Na)	RUSSIAN	7-7	7.5	5.3	5.3	4.5	4.4 0.19	4.7	4.5	4.4 0.19	6.7	5.6	5.0
	Mogne- stum (Mg)		7.2	6.4	7.3	4.7	4.1	5.8	•		4.7			
	Calcium (Ca)		1.45	1.10	7100	0.30	17	0.90	-		1.00			
	Ha w		7.9	7.7	7-7	7.1	6.9	7.3	8.5	8.1	7.5	7.9	7.3	7.6
	conductonce (micromhas at 25°C)		229	182	145	145	134	0† <b>1</b>	139	01 <b>1</b>	155	172	156	126
	1 00		95	111	115	102	98	104	%	102	93	100	98	95
	Disso		12.0	43 13.8	12.6	10.8	9.8	9.6	80	10.0	09 2	10.2	9.3	10.8
	Temp in of		42	143	53	56	8	68	89	62	72	58	54	20
	Dischorge Temp		103	135	306	191	326	324	216	217	218	303	302	302
	Date and time sampled	1957	1/7	2/4 1450	3/4 1500	4/1 1705	5/6	6/3 1745	7/8 1340	8/5 1510	9/10 1400	10/15 0940	11/4	12/16

o Iran (Fe), aluminum (AI), areems (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zh), and chromium (Cr), reparted here as and except as ehawn.

b Determined by addition of analyzed constituents. c Gravimetric determination.

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MATCH WATCH

ANALYSES OF SURFACE WATER NORTH COASTAL REGION TABLE BIO

worst District MWD), Lis Anderse Dapi of Weiss Power G-ADWFI, Gity of Los Angeles Dapi of Pub Health (1 ADF11).

	Analyzed by e		USGS		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	usas	USGS
	MPN/ml										7	0.62	Max. 95	Min. 0.06
1	- bid - ty n ppm		9.0		-	8	6.0	2.7	0 0	9.0	0.5	7	2	15
	Hordness os CoCO <sub>3</sub> Totol N C ppm ppm		0		<b>-</b>	<i></i>	9	œ	0	н	~	7	0	0
			95		35	T+1	3	53	96	ή9	2	61	58	142
	sod -				∞	10	12	6	10	18	7	7	00	6
Total	solved solids in pom						63				88			
	Other constituents						22	d			A1 0.04 Pb 0.01 PO4 0.00			
	On Silico (SiD <sub>2</sub> )		<u></u>		린	<u> </u>	13	ω <sub> </sub>	21	91	118	91	<u> </u>	- <u>-</u>
million per million	Baran (B)	<b>A</b>	0.03		0.01	0000	2 0.00	0.18	0.02	0000	2 0.01	00,00	0,00	40.0
er mill per	Fluo- ride (F)	\$T.A.					0.2				0.0			
parts per mittian equivalents per mil	rrote (NO <sub>S</sub> )	CITY					000				0.00			
equi	Chia- ride (CI)	CRESCENT	2.6		1.0	3.2	2.0	1.7	2.9	2.8 0.08	2.3	2.5	14.8	3.5
Ē	Sul - fote (SO <sub>e</sub> )						7.7				3.8			
Mineral constituents	Bicar- banote (HCO <sub>3</sub> )	RIVER NEAR	58 0.95		η 1η	45.0	08.80	55	1.15	1.26	82	1.18	71	0.80
ineral co	Carban- ate (CO <sub>3</sub> )	SMITH R.	0000		0000	0.00	00.00	0000	0.00	0.00	0000	0000	0000	0000
2	Patos- sium (K)	ωı	0.00		0.00	0.3	0.00	0.00			0.02			
	Sadium (No)		1.8	proken	1.4	2.0	2.7	2.5	2.7	6.5	2.5	2.1	2.4	1.9
:	Mogne- srum (Mg)		8.1		6.3	0.59	7.7	7.8	10		1200			
	Calcium (Ca)		5.2	Sample	3.6	4.4	5.8	8.4			0.40			
	표 😘		7.8	7.7	7.3	7.1	6.9	7.2	8.1	8.2	7.7	8,1	7.2	7.7
ei j. ad	0 00		107		70.1	81.0	97.8	99.3	119	130	142	123	120	85.9
	6		106	114	131	110	107	116	96	111	101	105	100	113
	Dissalved oxygen ppm %S		13.4 106	14.6 114	14.7	11.8	11.4 107	11.2 116	0.6	10.4	9.6 101	11.14 105	11.6	13.2 113
	Temp in OF			μı	15	55	55	63	99	99	65	54	<b>9</b>	
	Discharge Temp		1400 42	2430	17,800	4920	1520	1240	562	428	300	1270	592	13,800 48
	Date and time sampled	1957	1/9	2/7	3/7	1510	5/8	9/9	7/11 0730	8/8 1600	9/11	10/17	11/7	12/18

o Iron (Fs), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Za), and chramium (Cr), reparted here as 00 except as ehown.

b Determined by addition of analyzed constituents'

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses at duplicate monthly samples made by Calif. Deat of Public Health, Division of Labaratories.

8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angales Dept. at Water & Dept. at Angales Dept. at Pub Health (LBDPH), at State Department at Water Resources (DWR), as indicated. \* Field pH except when noted with a

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ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER NORTH COASTAL REGION

	Analyzed by e			USGS		USGS	usgs	USGS	USGS	USGS	uses	uses			
	Caliform MPN/ml						*****				Median 9.6	Max. 620	Min. 0.06		
	- piq			90		1.1	10	7	9.0	9.0	12	2			
	N C			0		2	#	0	#	2	2	0			
	Hordness as CaCO <sub>3</sub> Total N C			53		η-	52	72	93	104	70	79			
	cont cont cod - mu			<u></u>		12	6	12	12	13	=======================================	12			
Total	Solved solids in ppm					49				142					
	Other constituents					As 0.01 Al 0.02 Cu 0.03 Zn 0.02	d nonthod			A1 0.03 PO40.00 142					
	(S.O2)			<u> </u>		17		6	01	3 19	<u></u>	<u> </u>			4
million per million	Boron (B)			0.08		2 0 00	0.0	0.09	00.00	0.2 0.13	0.08	0.08		 _	-
per per	Fluo- ride (F)	7				0.0									
parts per million equivalents per mil	N trote (NOs)	PA (ST				0.00				0.00					
equiv	Chlo- ride (CI)	NEAR HOOPA (STA		0.00		2.5	2.3	4.0 0.11	5.7	5.7	3.5	5.8			
Ē	Sul - fate (SD <sub>4</sub> )	RIVER N				4.8 0.10				12					
tituents	Bicor – bonate (HCO <sub>3</sub> )			65		0.80	59 0.97	1.44	109	125 2.05	83	1.59			
Mineral constituents	Corbon - E	TRINITY		000	•	00.00	0000	0000	0000	0000	0000	00.0			
Miner	Potas- Co	-				0.01	0.0			1.1					1
	Sodium (No)		g g	2.2 0.8 0.10 0.02	-	0.12 0	2.4 0.10	4.4 0.19	5.8	0.310	3.9	5.0			-
			Sample broken				5° 4 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 44 0° 0° 0° 44 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0° 0°	70	rV10		<u> </u>	ndo			-
	Magne- Srum (Mg)		р	5.6		2.3				10					4
	Coleium (Co)		Sem	12		13	12			$\frac{25}{1.25}$					
	Ha 🙀			7.6		96.4 6.8	7.2	<b>1</b> • 8	7.5	7.9	8.5	7.3			
Specific	conductonce (micromhos at 25°C)			111		₩•96	105	158	200	229	155	173			
	1 5 1		119	125		901	901	66	96	46	105	76			
	Dissolved oxygen ppm %Sc		47 14.0 119	14.0 125		11.2 106	9.8 106	8.6	8.6	0.6	61 10.4 105	8			
		pun	47 1	51 1	pur	56 1	19	73	22	67	61 1	49 10.8	pur		
	Discharge Temp in cfs in 0F	Snowbound	1700	24,000	Snowbound	8900	7300	1790	643	617	0647	1600	Snowbound		
	Dote and time sampled	1957 Jan.	2/6	3/6 1420	April	5/10	6/5 1545	7/10	8/7	9/12	10/16	11/6	Dec		

o Iron (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as 00 except as ehown.

b Determined by addition of analyzed constituents

c Grovimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

6 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LADPH) or State Department of Water Resources (DWR), as indicated \* Field pH except when noted with \*

virabolism Water District (MWD), Los Angeles Dapi of Water & Paser (LACWP), Criy of Los Angeles Dapi of Puli Macifn (LACPH),

NORTH COASTAL REGION

		Analyzed by e			nses	uses	uses	USGS	usgs	USGS	uses	uses	USGS	USGS	USGS	USGS
		bid - Coliform												Median 42	Max. 7000	Min. 0.23
	707	- bid -			~	~	15	m	2	017	9°0	5	2	н	9	2
		CO3	Z d Z d		0	0	2	7	0	m	0	∞	0	0	0	
			Totol		514	99	43	143	3/1	寸	52	7.	2	63	52	56
	Per-	E od -			28	27	10	13	13	17	19	16	19	23	19,	18
	Total	solved solids	م						53				46			
		Other constituents							Fe 0.03 A1 0.11 Zn 0.04 P010.00	5			A1 0.04 PO40.00			
		Silico			<del> </del>	21	91	[2]	0000 15	- 21	Al	∞I	77	72		a
	per million	- Boron			0.18	0.20	90.0	0.02		0.02	0,11	0.08	1 0°14	0.15	0.11	0.20
ooiling ,	per	Fluo-		(¥)					0.01				0.01			
2000	lents	1 rote	(NO 3)	(STA					0.01				0.00			
	equivolents	Chlo-		LEWISTON	7.7	8.5 0.24	0.04	2.6	10.04	2 <u>27</u> 0 <u>0</u> 08	14.8	6.3	3 7.8	8.5	5.2	$\frac{0.66}{0.002} \frac{0}{0.000} \frac{74}{1.21} \frac{4.00}{0.011}$
	<u>c</u>	Sul -	- 1	ER AT					1.9				3.8			
	constituents	Bicor - bonafe	(HCO <sub>3</sub> )	Y RIVER	73	82	146 0°75	51	43	50	1015	1.31	86 1.41	1.41	90°1	74 1.21
	Mineral cor	Carban-	(600)	TRINITY	0000	0000	0000	0000	0000	000	0000	000	0000	0000	0000	0.00 0.00
	M	Polos-	(X		0.00	0.00	0.01	0.01	0.0	0.01			1.1			
		Sodium (ov)			0 0	0 th	2.4 0.10	2.9	2.4 0.10	3.2	5.7	6.7	7.6	0.38	5.3	5.2
		Magne- S			8.5	9.7	7.5	7.3	5.7	6.8			0.98			
		Colcium	(2)		7.6	8°0 010	4.8 0.24	5.2	4.2 0.21	6.4 0.32			8,4			
		ŕ	4		7.5	7.5	7.4	7.3	7.3	7.3	7.3	7.6	 8	7.5	7.2	7.3
	Specific	(micrombos of 25°C)			144	158	83	89.9	72.9	4°68	126	149	172	164	106 124	115 132
			%Sat		6	89	96	95	06	93	88	96	89	107	106	115
		Disso	₩dd .		12.3	11.2	11.0	10.8	10.2	9.3	8.1	80	8,2	11.4	11.4	14.2
		Te and			42	42	7	20	20	719	89	89	89	55	54	<u> </u>
		Discharge In cfs			815	059	5390	2630	3810	1300	1,52	286	161	815	1300	682
		ond time sompled		1957	1/1 <sup>4</sup>	2/1 <sup>4</sup> 1030	3/12	1230	5/1 <sup>4</sup> 0915	6/17 1430	7/17 0930	8/12	9/11 0845	10/8	11/13	12/10 682 44 14.2 115 132 7.3 5.2 0940 0820

o Iron (Fe), oluminum (A1), arsenic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zh), and chromium (Cr), reported here os do except as ehown.

b Defermined by addition of analyzed constituents

c Grovimetric determination,

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Labarances. Quality of Water Branch (USGS). Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated \* Field pH except when noted with e

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TABLE B-11
ANALYSES OF SURFACE WATER
SAN FRANCISCO BAY REGION

		Analyzed by a		USGS	uses	USGS	USGS	USGS	USGS	USGS				USGS	Uses	
		MPN/mi													Median 14.6 Max. 7,000 Min.	
	T in L	- Pid Lit		0.8	1	7	7	8	7	8				H	œ	
		As Cocos		65	58	59	₫	57	26	58				1 32	116	
		1		0£ 7	364	276	324	372	343	343				398	38 474	
	å	and		75	K	23	29	32	8	36				29	35	
	Total	Solved solids in ppm	,					109								
		Other constituents						Fe 0.01 A1 0.17 Su 0.01 Zn 0.03 Pot 0.55 &								
		Silico (SiO <sub>2</sub> )					N	의	- Al					W)		
	Illion	Boron (B)	(E)	11	100	0.68	0.77	1:3	0.89	11				0.83	7-1	
	parts per million valents per million	Fluo- ride (F)	(SFA. 7					0.14 0.02								
	ũ l	Ni- trate (NO <sub>3</sub> )	LES (S					0.00								
	parts p equivalents	Chia- ride (Ci)	NEAR NILE	142	87 2.45	1.49	1.58	2.57	9991	63				2.17	5.92	:
	Ē	Sul - fate (SO <sub>4</sub> )	CREEK					100 2,08								
	constituents	Bicor- bonata (HCD <sub>3</sub> ) (	MEDA CI	7.29	373	265 4.34	342	384 5.29 2.	322	348				324 5.31	7.16	
		Carban B ate (CO <sub>3</sub> )	3.L.R	000	000	0000	0000	0000	14 0.47	0000				000	0000	
	Mineral	Potos- Co		8.4 0.21	15	6.9	3.8	4.9 0.13	4.2 0.11	10				10	10	. !
		Sodium (No)		103	3.39 0	51 6	61 3	3.52 0	3.04	3.83				3-31	136	
		Mogne- So sum (Mg)		50 4.11	1,2 3,4	31 2.58 2	2.39 2.	9°.8	3.06	- Iw				167	5	
		Calcium M			3.84	59 2.94 2	3.59	83 f.14	3.79							
Ì		Ta 🛀	-	8.1 T		7.7	7.9	8 .3	80 60 100	8.3				8.1	r,	
	01000	(micrambas at 25°C)		1220 B.	985 8	739 *7	835 7	8 466	ο6ς 8	9 096		- * * * * * * * * * * * * * * * * * * *		1040	1500 8.1	,
		15		85	82	40.	7	92	98	81				η <sub>6</sub>	93	
		Dissolved oxygen ppm %Sc		10.2	9.0	10.6 104	7.9	8.3	7.5	7.1					10°t	
		Te ap		1,5	53	58	58 7	70 8	73	72				54 10.2	51 1	
		Discharge Temp		6.3	0*1	19	₹.6	80.	1°t	0	Dry	Dry	Drzy	1.2	20	
		Date and time sompled	1957	1/16	2/20	3/12	4/17	5/16	6/19	7/17	8/21 0850	9/12 0850	10/14	11/20	12/17	, ,

o Iron (Fe), oluminum (AI), oreenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 300 except os shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laborates.

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f Field pH except when nated with e

ANALYSES OF SURFACE WATER

SAN FRANCISCO BAY NEGICE

	Anolyzed bye			USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	US BR		
	Coliform MPN/ml															
Tori	bid- ity In ppm															
	CO3 N.C.														*	
				0			<u>-</u>							_	·	
	ed cont			P 01/1	16/18	67814 77	7667	196	9352	7557	368	96:	8808	5300		
Toto	solved solids in ppm			13,440	~~~~	.9			6	15,624	13,868	10,196	88	22		· · · · ·
	Other constituents															
	SHica (SiO <sub>2</sub> )										· · ·				•	
ion	Boron S (B) (6															
per million	Fluo- ride (F)		28 <b>a</b> )												•	
5   6	Ni- trate (NO <sub>3</sub> )															
equivalents	Chlo- ride † (Cl) (f		MARTINEZ (Sta.	331		1438									•	
1			AT MAI			71										_
ents ın	re fate (SO <sub>4</sub> )		STRAITS AT													
constituents	Bicar- bonate (HCO <sub>3</sub> )		23													
Mineral co	Carban- ate (CO <sub>3</sub> )		CARCUIN													
Min	Potas- sium (K)										-					
	Sodium (Na)			3358		1812					-					
	Magne- Sc sium (Mg)				<del></del>									<del></del> -		
	Mo (s															
	Calcium (Ca)													-		
	Hd DH				7		C)			-						
Specif	canductance (micramhas at 25°C)			18,481	2747	10,189	7882	281	13,324	22,354	20,803	14,306	13,518	8150		
	Dissolved oxygen ppm %Sat															
				877	56	57	63	20	7.1	22	89	70	779	55		
	Orscharge Temp	Tidal														
1	Date and time sompled	1957		1-28 1310	2-28 1015	3-27	5-1	5-27	6-24	7-30	8-26 1130	9-25 1030	10-29 1030	11-25		

o Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{QO}{QOO}$  except os ehawn. b Determined by addition of anolyzed constituents

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ANALYSES OF SURFACE WATER SAN FRANCISCO BAY REGION TABLE B-11

Since Decorrenges of World (CWAS), an interpretable of World (CASWE), City of the Angeles Dept of Pub Henrin (CASPI),

		Anolyzed by e		USGS	USGS	USGS		USGS	USGS	USGS	USGS	USGS	uses	USGS	uses	USGS	
		Cotiform MPN/mi														5	7,000 Min. 0,62
	7 nL	- pid - y		5.8	0		ı	0	H	25	-	7	2	9	2	20	
			N C	13	14	17	ì	Ħ	12	12	19	2	0	0,	17	20	
			Total	154	141	147		91	141	142	152	175	145	154	170	178	
	۵	P P P		17	78	00		© #	18	17	17	16	196	17	61	17	
	Totol	solved solids	in pp.						191				196				
		Other constituents							Zn 0.02 Al 0.11				A1 0-10 a		Alkalinity 190		
	1	on Sitico	2	<u> </u>	7	00	21	রা	47.5	∞	<i>-</i> 21	ol	2 8 6	I	<u>ਬ</u>	2	
ug.	per millian	- Baron		0.06	40°0	0		0,21	30.14	0.08	0.14	0.10	0.15	0.11	0.07	0.03	
r militan	per	Fluo-		DRON					0.3				0.01				
parts per	lents	N-1	(NO <sub>3</sub> )	R MA					0.01				1.2				
ja	equivolents	Chla-	(C)	OREEK NEAR MADRONESTA.	9.5	0.27	0.27	0.28	0.28	9.0	10	0.28	0.34	9.0	0.37	15 0.42	
	ē	Sut -	(80°)						30				0.56				
	constituents	Bicor -		COYOTE 172	2.02	2.54	2.61	2.57	2.57	158 2.59	162	165	166	2.90	2.95	3.16	
		Carbon-		0	00.00		00.00	0000	0000	0000	0000	0000	0000	0000	5 0.17	0000	
	Mineral	otos-		1.2			0.05	2.0	1.9	2.1	10		0.00				
		Sadium	lo N	15		1		19.0	15	17	14 0.61	15	15	15	18	17	
		Mogne- S		71	15	1.27 0	- Y	1,15	1.07	111			15.1	- 1			
		Colcium	(00)	38		25°	T	.65	35	34			1.70				
-		Ŧ.	ų,	8.3		<u> </u>		8,3	7.7	 	7.9	7.9	7.9	6.	8.0	8.3	
	Specific	(micrombos	2	347 8	319	*	254	322 8	325	326	332	338	#£	346 7	393 8	101	
			%Sot	131	118	0	777	138	100	104	100	103	66	95	8	102	
		Dissolved	шаа	15.1	13.6	7 6	D. C.	5.3	11.1	11.2	11.0 100	10.9	10.4	9.8	9.7	10.9	
		Te mo		164	L 64	, , ,		52 1	52 1	₹ ₹	52	55	56 1	58	8	55 1	
		Dischorge Temp		₽•6	148	-	†1	23	76	74	103	100	89	89	53	13	
		Dote ond time sampled		9 <u>1/</u> 1	2/20	1135	1515	4/17 1030	5/16 0940	6/19	7/17 0935	8/22 1050	9/13	10/14	11/21	12/17	

a Iron (Fe), aluminum (A1), orsenic (Ae), capper (Cu), lead (Pb), mongonese (Mn), zinc (Zn), and chromium (Gr), reparted here as  $\frac{dO}{QQO}$  except as shown.

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ANALYSES OF SURFACE WATER SAN FRANCISCO BAY REGION TABLE B-11

		_												
	Anolyzed by a		USGS	USGS	nses	uses	uses	USGS	USGS	USGS	USGS	USGS	USGS	uses
	Coliform MPN/mi							_					Median	23 Max. 2,400 Min. 0.09
1	- Pid		ካ°0	2	288	102	09	50	-	0.3	0	~	0.8	230
			55	8	32	51	92	45	98	53	53	57	92	44
	Hordness os CoCO <sub>3</sub> Totol N C		308	322	89	160	300	271	388	330	340	308	357	165
200	Sod -		12	14	16	15	15	<b>1</b> 1	13	16	1,1	14	15	16
Totol	solved solids in ppm						395				736			
	Other constituents						Fe 0.01 A1 0.14 cu 0.01 Zn 0.03				FO <sub>4</sub> 0.25 Fe 0.01	•		
,	(2015) 001150	ক্র	m	∞I	M	\o	2 15	21	<u></u>	21	2	m	<b>↔</b> 1	<u>~</u>
Fion	Boron (B)	A 74)	0.03	0.08	0.03	0.16	D-19	0.0	0.23	0.13	0.03	0.13	0.11	0.05
per r	Fluo- ride (F)	(STA					0.3			_	0.2			
parts per million equivalents per mil	rrote (NO <sub>3</sub> )	GATOS					1.2				0.01			
equive	Chlo- ride (CI)	AT LOS	15	16	6.0	9.5	120.34	67 1.89	18	20	20	18	22 0.62	0.37
Ē	Sut - fote (SO <sub>4</sub> )	CREEK					2.10				78			
constituents	Bicor- banate (HCD <sub>3</sub> )	GATOS	308	283 4.64	62	133	273 T-1	24.9	368	338	350	306	343	2.36
Mineral con	Corbon- ote (CO <sub>3</sub> )	LOS	0000	0000	0.00	0000	0000	8	0000	0000	000	000	000	0000
Min	Potas- sium (X)		2.6	2.4	2.5	1.9	3.2	2.5			3.2			
	Sodium (No)		19	24 1.04	2-3	13	2 <sup>t</sup>	20 0.87	1,17	28	25 1.09	1,00	29 1.26	14 0.61
	Mogne- sium (Mg)		30	31 2.55	7.7	1,15	26 2.11	1.98			31 2.56			
	Colcium (Co)		3.69	3.89	23	41 2.05	3.89	3.46			4.24			
	I G		7.9	7.9	7.0	7.7	8	8.1	8.1	8.0	0	8.1	8,1	7.8
Specific	conductonce (micramhos of 25°C)		609	658	224	37.1	623	260	768	682	703	0479	728	378
	1 5		102	95	98	96	93	96	100	26	92	92	102	ま
	Dissolved oxygen ppm %Sc		11.9	10.6	10.0	7.6	9.3	9.2	80	9.2	& &	9.5	10.7	10.3
	Te ar		841	51	58	59	8	179	72	65	<del>1</del> 9	58	56	53
	Dischorge in cfs		5.2	7.0	23	99	6.7	5.5	1.16	h9°0	0.57	10	2	± €
	Dote ond time sompled	1957	1/17	2/21 1105	3/11	4,717	5/16	6/20	7/17	8/21 1045	9/12	10/15	11/20	12/16 14 <b>1</b> 5

a Iron (Fe), oluminum (A1), preenic (Ae), copper (Cu), lead (Pb), mongoneee (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown.

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f Field pH except when noted with &

TABLE B-13

ANALYSES OF SURFACE WATER SAN FRANCISCO BAY REGION TABLE B-11

		Analyzed by e			USGS	USGS	USGS	USGS	USGS	usgs	USGS	usgs	USGS	USGS	USGS	USGS	
	•	bid - Coliform														Z30.	7,000 Min.
	Tur.	- A-	7		20	8	12	80	#	7	Н	٥.4	2	-	1	70	
		Hardness os CoCOs	N C Pod		0	0	0	0	0	0	0	-	0	-4	0	r-1	
		Hard OB Co	Total N C ppm ppm		73	88	55	73	81	93	126	150	136	78	77	37	
	0	- pog	<u> </u>	-	39	2	29	33	33	50	24	22	ъф2	36	37	34	
	Total	Bolved solids	E 00.0						174				217				
			Orner constituents						12 Fe 0.04 A1 0.10 Cu 0.01 Zn 0.02 Pot 0.60 a				PO4 0.25 &				
		Silica	(SiO <sub>2</sub> )										Ħ				
	million	Boran	<u>@</u>	[22]	0.83	0.94	0.26	0.36	0.62	0.42	C+ 43	0.10	0.37	0.65	0.43	म् १०	
	per mil		(F)	STA	,				0.03				0.3				
	6 1		(NOs)	HELEN					0.03				0.01				
Without the costowns we	ports p		(12)	NEAR ST. H	0.70	0.85	8.5	13	0.42	13	16	12 0.34	12 0.34	21 0.59	19 0.54	6.5	
100	Ē	- Ins	(\$0.						12 0.25				13				
200	constituents		(HCO <sub>3</sub> )	NAPA RIVER	8138	112	68	96	107	120	156	182 2.98	3,06	94	1.64	44	
1	Mineral con		(CO <sub>3</sub> )	M	00.00	0000	0000	0000	0000	0000	0000	0000	0000	00.00	0000	0	
	Min		E(X)		4.3	3.4	1.9	2.8	2.8	2.9			0.08				
		Sadium	(0 N)		1.00	28	11 0.48	17 0.74	19	0.74	18	19	20 0.87	20 0.87	21	8.7	9
			(Ng)		7.4 0.61	98°0	0.10	7.4	8.1	0.80	-		1,23				
		Calcium			0.85	0.90	14	17	19	21			28				
Ì		ī	44		7.1	7.0	7.3	7.3	7.3	7.3	7.5	7.3	7.7	7.3	7.1	7.1	
	Soccific	conductonce (micromhos	(2°C2 TB		261	<u>&amp;</u>	163	22 <sup>t</sup> ()	247	260	319	352	356	254	246	108 7	
			%Sof		85	81	66	102	88	100	112	74	99	87	†8	8	
		Dissolved	mdd		10.0	8.5	30.8	10.1	8.6	8.7	9.8	6.8	5.5	8.6	9.2	10.2	
		Temp in of			147	56	53	19	62	5,	73	89	68	19 62	13 53		
		Dischorge in cfs			28	7.6	126	32	21	0,6	1.3	0.5	0	19	13	700 50.	
		Date and time		1957	1/15	2/19 0800	3/14 1200	4/15 1530	5/14 1005	6/20 1430	7/16	8/20 0700	9/11 0730	10/15	11/19	12/18	

o Iron (Fe), oluminum (AI), orsenic (Ae), copper (Cu), lead (Pb), mangansse (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{000}$  except as shown. b Determined by addition of analyzed constituents.

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CENTRAL COASTAL REGION

	Anolyzed by m			usgs	uses	uscs	USGS	uses	USGS	USGS	uses			USGS	USGS
-	bid - Coliform d														Median 5.6 Max. 7,000 Min.
	Colif			88						6	8			#	Median 5.6 Max. 7,000 Min. 0.13
-	Piq si	D E G		65 0.	1	27 1		 R	34 10	72 0.9	89 0.8			95 0.4	79 0.8
	Hordness os CoCO <sub>3</sub>	Tatol N PPm p			173 5		39 34	139	146	210	326			231	210
	sod -	-		29 196	28 1	25 112	26 1	27 1	27 1	562	32			29	8
10	Solids							239	- 64						
	Other constituents							Fe 0.02 Al 0.09 Zn 0.02 POU 0.05	ed .						
	on Silico	000		01	킖	0	ଅ	23	ল	8	7	-		- <sub>10</sub> -	N
million Der million	D- Boron			<u> </u>	10.0		0.03	3 0.02	0.03	0.08	0.07			90 0	0.05
		$\rightarrow$	54.6		<u>.</u>			0.3							
ports pe	Ni -	QN)	WEL STA					00.00							
1000	Chlo-	(C)	NEAR CA	1.24	28.0	13	26	0.70	28	1.30	62			1.58	1.30
Ē	Sul -	(80°)	RIVER					50							
constituents	Bicar -	(HCO <sub>3</sub> )	CARMEL R	160	\$1°	100	128	126	136	168	167		·	166	160
	Corban	(00)	ঠা	0.00	0000	000	0000	0.10	00.00	0000	0000			0000	0000
Mineral	Palas-			3.2	2.8	2.1	2.5	2.4	2.7						
	Sodium			1.61	1.35	18	23	1,04	26	39	148 2,09			1.91	1.83
	Magne			16	15	2.0	0.93	0.88	0.93						
	Calcium	(0.0)		2.64	2.20 ∰	28	1.83	1 38	2,00						
	I	44		88	8	8.1	7.9	8,1	8.3	7.5	7.3			7.7	7.5
	Conductonce (micrombos			548	944	296 %	388	379	601	583	650			8479	589
		%Sat		136	131	96	101	111	911	79	119			100	82
	Dissolved	mdd		55 14.5 136	13.2	55 10.2	10.3	10.3	9.7	7.h	5.6			9.9	0°6
	Temp in of				8	55	59	49	77	99	73			19	53
	Discharge Temp			Not								Dry	Dry		
	Date and time		1957	1/16	2/20 1440	3/12 0930	1,717	5/15	6/19	7/18	8/21 1600	9/12	10/14	11/20	12/17

o Iron (Fe), aluminum (Al), areanc (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here oe 00 except as shown.

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Field pH except when noted with \*

ANALYSES OF SURFACE WATER CENTRAL COASTAL REGION TABLE B-12

	pezi	T	Ŋ	ro.				ις	ဟ	· ·	(0		10		
	Anoiyzed by e		USGS	USGS	USGS	USGS	USGS	U3GS	USGS	USGS	USGS	uses	USGS	nses	
	Soliform MPN/ml													Median 42 Max. 7,000	7 7
Į.	- pid Lity		8	r.	21	#	8	6	-	ω.	m	#	0.6	10	
	2000 N	E	78	147	55	600 247	510124	37	0	18	K	20	0	29	
		Edd	455	864	255	009	510	417	r33	7,90	507	500	40 8 8 04	504	
9	sod -		33	콗	25	ĸ	33	Ħ	54	641	14.5	145	75	3	
Totol	solved solids	۵					696				1030				
	Other constituents						Fe 0.15 Al 0.26 Cu 0.01 Zn 0.03 POl 0.45	Tot. Alk.			Tot. Alk. 581 PO4 0.75 Fe 0.01 Al 0.34 &		Tot. Alk. 509		
	Silica (SiO <sub>2</sub> )		वस		īζ	91	10	0	91	티	21	<u></u> 21		-1	$\dashv$
million per million	Boron (8)		0.74	0.81	0.95	0.79	300	1:0	1.6	0.91	2 0.82	8	1.5	1.3	_
r million per mil	Fluo-						0.0				0.03				
parts per volents	rote .	(NO3)	TENDE				0.0				1.5				
parts p	Chlo-	(CI)	108 3.05	3.38	1.35	3,16	3.69	125 3.52	270	178	159	162	374 10.55	182	
Ē	Sul -		VER N			-	263 5.48				219				
constituents	Bicar- bonote	- 1	1.50 R.	1428	7.00 T-00	1,30	7.72	419	543	9.776	555	528 8.65	495	579	
Mineral con	Corbon-		000	0000	0000	000	0000	22 0.73	0000	00.00	13	28	0.23	0000	
Mine	Potos-	(K)	3.9	3.4	2,1	3.4	3.2	3.6			6.0	· · · · · · · · · · · · · · · · · · ·		· · · ·	
	Sodium (Na)		106	120	222	5.52	154	133	236	214	197	188 8.18	257	8.57	
	Magne-		61	69	30	82	64 5.26	52 4.25		•	76				
	Calcium N		82	86	53	106	4.94	4.09			3.89				
	_		8.1	8.1			8 2 4	8.3	8.1	φ ω	<u>ो</u> ल न	φ φ	0,	8.1	$\dashv$
2	nhos o C)	_			8 1	9.1									$\dashv$
Soec	conductance (micromhas at 25°C)		1220	13%	690	1510	1510	1310	1760	1690	1680	1680	2020	1720	
	Dissolved	%Sat	ま	901	92	87	98	8	95	24	93	98	82	73	
		Edd	149 10.7	11.1	9.2	8.8	7.9	8.2	0.6	0.6	8 8	8.3	8.4	0.6	
	Te ar		64	26	09	59	89	69	65	49	69	63	58	£.	
	Discharge in cfs		10	5.8	52	9.3	6.5	2.4	0.42	59.0	1.90	2.14	1.4	10	
	Dote ond time sampled		1/16	2/20	3/12	4/17 1225	5/15 1450	6/19	7/17	8/21 1345	9/12	10/14	11/20	12/17	

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f Field pH except when noted with a

CENTRAL COASTAL REGION

		Analyzed by e					DWR	DWR	DWR	DWR									
		MPN/mi														Media	9.6	Mex. 62	Min. 0.6
	Ę	- pid - yth					5	₹.	-5	₹									
		Hardness as CaCO <sub>3</sub> Tatal N C ppm ppm																	
-							303	381		365									
-	3	- Bos e					21	24	10	56									
	Total	Solved solids in ppm							575										
		Other constituents							•										
		Silico (SiO <sub>2</sub> )	~						15			_							
	lion	Baron (B)	1 430				0° 41	0.21	0.20	0.20									
million.	per million	Flug- ride (F)	(Sta						0.02					-					
parts per million	;		ES	-			<del></del>		0.00										
pari	equivalents		ROBLES				mlm.								<u> </u>			<del></del>	
	ě	0.21	T PASO	-			33	1,12	1.27	1-41									
		Sul - fate (SO <sub>e</sub> )	RIVER AT						2.85										
	constifuents	Bicar – bonate (HCO <sub>3</sub> )	SRI				267 4.38	339	323	32 <b>5</b> 5.33									
		Patas- Carban- Esum sum (K) (CO <sub>3</sub> )	SALINAS			-	000	0000	0000	00.0									
	Mineral	sium (K)		•					1.8										
		Sadium (Na)							51 2.22										
		Magne- S sium (Mg)							3.04										
		E (O							#-34 34										
-		Calcium (Ca)					80	0	8 4	8.0									
-		H																	
	Specif	conductonce (micrombos at 25°C)			No report, presumed dry	=	708	876	863	98									
		Dissolved oxygen ppm 9/sst			m 9	ŧ	81	104	%	102									
					t, pr		8.6	9.2	8.2	9.3									
-		Te and			por	=	55	72	5 75	72					No report				
		Discharge Temp in cfs in 0F			No F	=	est 30	est 10	est 15	est 5	Dry	Dry	Dry	Dry	No r	Dry			
		Date and time sampled		1952	Jane	Feb.	3/6	1500	5/7	0101	July	August	Septe	Oot.	Nov.	Dec. 1100			

o Iran (Fe), aluminum (AI), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as \$\frac{\alpha 0}{\alpha 0}\$ except as shown. D Determined by addition of analyzed constituents constituents constituents.

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ANALYSES OF SURFACE WATER CENTRAL COASTAL REGION TABLE B-12

		Analyzed by e			USGS	usgs	uses	USGS	USGS	usgs	uses	USGS	JSGS	USGS	3565	uses	
		Coltform MPN/mi											-			230 Max. 7,000 Min.	7.5
	j.	- pid - Vil mgd u			m	55	2	18 268	8	-	ۍ 80	80	10	10	H	24 150	
			E		.59	13	35	18	24	20	91	16	7,1	7₹	20	5π	
			mdd		139	88	128	96	132	33	34	129	126	131	1,40	2	
	0.	Cent			25	28	25	25	25	77.7	25	26	23	25	56	25	
	Total	salved salids in ppm	۵						216				2 223				
		Other canstituents							Fe 0.06 A1 0.10 Cu 0.01 Zn 0.02 POų 0.35		Tot. Alk. 144		30 PO4 0.60 Fe 0.02				
		Silica (SiO <sub>2</sub> )			OI.	<u></u>		101	21	101	<del>- 01</del>	101		101			
	Illian	Baron (B)		F	0.02	ಾಂ	0000	0.16	0.10	0.06	0.10	0.05	00.00	0.05			
oi I i i	per millian	Flua-		Y S					0.3				0.0		0.10	0.03	
ports per million	: 1	Ni- trate	37	TREES					00.00				0.0				
200	equivalents	Chlo- ride	(5)	AT BIG	23	16	16 0.45	14	0.51	18	22 0.62	25	25	23	2° 0 €8	12	00
	٥	Sul - fore	(30%)	RIVER					42 0.87				23				
	constituents	Bicar - bonate		LORENZO	134	1-49	113	95	2,16	136	132	138	137	2,15	2.39	0.93	
		Corbon –	- 1	SAN LC	0000	0000	00.00	0000	0000	0000	6.20	0000	000	000	000	0000	
	Mineral	Potos-	- 11	s :	1.8	0.05	1.8	1.8	1.6	2.0	<u>                                      </u>	<u>lo</u>	2.6 0.07		10	10	
		Sodium Po (Na)	+	_	0.96 0.	16 0.70	20 0.87 0.	15	0.87		212	21 24		- de	23		
		S S	_					m	0 0	00 0.87	0.91	0.91		0.87	1 2	11 8 8 8	
		Magn	D MA		8.3	6.2	7.4	6.0	7.8	770			0				
		Catcium Magne-			42 2,10	1.25	1.95	1.40	40	41 2.05			140				1
		I (	4		7-7	7.3	2.6	7.5	9.4	6.2	3.2	6.4	7.8	2.6	7.9	7.3	
	Specific	conductonce (micrambos at 25°C)			371	241	337 *	269	348	349	353	347	351	356	374	181	(0.3)
		11	%Sat		98	97	76	92	95	8	123	108	104	92	105	89	
		0 %	E 0d		12.0	10.9	9.8	9.8	10.3	9.7	11.2	9.9 108	9.8	9.9	1.2	9.7	
-		Te or			<b>\$</b>	12	55	55	24 2	\$	69 1	89	59	立立	55 13	23	
		Discharge in cfs			32	49	111	106	25	η2	56.6	19.4	18.5	36.0	36.6	1280	
		Date and time sompled		1957	1/17	2/21 0955	3/11	4/17	5/15	6/20	7/17	8/21 1200	9/12	10/15	11/20	12/16	(A)

o Iron (Fe), oluminum (AI), graenic (Ae), copper (Cu), l b Defermined by oddifian of anolyzed canetituents.

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ANALYSES OF SURFACE WATER CENTRAL COASTAL REGION TABLE B-12

	Anolyzed by e					DWR	DWR	DWR	DWR	DWR									
	As CaCO3 11y MPN/mi															t di	18	<b>Мвж.</b> 240	Min.
	bid -					-5	-5	5	r.	-5						Σ			
	dness acos	∪ E Q Q Q																	
1	1					626	507	579	\$ -	558	_								
-	P P P P P P P P P P P P P P P P P P P					171	18	16	17	15									
Total	Bolved solids	המס הי				_			882										
	Other constituents		(Sta 45)						ತ										
	Silico	( <b>8</b> 01C)							10										
Lion	E	<u>(</u> )				여.0	9°-15	94.0	0.36	6-33									
million per million	Fluo-		CANYOR						0.03										
151	1		- 1						0.00										
parts pe	Chio-		LOS LAURELES			23	2 <sup>4</sup> 0.68	0.90	26	26 0.73									
Ē	Sul -	(SD.)	BELOW						部.										
constituents	Bicar -	- 1				336	30 tr 38	322 5.28	306	33 <sup>4</sup> 5.47									
1	Corbon - B	(,0)	NEZ RIVER			0.00	0000	0000	0.00	0000									
Mineral	Potos- Co	ξ.	SANTA KIN					10	2-1										
	Sadium	6	<u>&amp;</u>						2.22										
	Sa.	3							·编·										
	Magne	Ž															<u> </u>		
	Calcium	(0)		.,					129										
	# (	<b>L</b> ,				8.0	6.8	8	7.6	7.6									
	conductonce (micrombos	6				1269	1089	1183	1149	1070									
		% Sot				112	8	83	65	8									
	Dissolved	Edd				11.1	9.2	8 8	9.9	7.8									
	Temp In OF					61	53	55	59	63					por				
	Dischorge Temp in cfs in aF				Dry	9.0	12	3.6	2.6	0.5	Dry	Dry	Dry	Dry	No report	Dry			
	Dote and time			1957	Jan.	2/6	3/6	14/2	9/8	9/9	July	Auge	Septe	0000	Now.	Dec./4			

here of ago except a Iran (Fe), oluminum (Al), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and e b Determined by addition of analyzed constituents.

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CENTRAL COASTAL REGION

	Anolyzed by e					DWR	DWR	DWR	DWR	DWR					DWR	DWR		
	Coliform d															Median	23 Max. 700 Min.	
	Ter- bid- ity mppm	-				7	7	7.	7	-5					1/2	-5-	M	
	Hardness os CoCO <sub>3</sub>	E							216									
	1	E a				587	984	564	562	571					575	592		
	Per- cent sod -					16	21	19	19	19					18	19		
	Total Dis- solids in ppm								874									
	Other constituents								eš									
	Silico (SiO <sub>2</sub> )								20	m!					-1			
5	Baron (B)		1			0.29	0.73	70	0.02	0.38					9,0	9.0		
millio	Fluo-Borride (B)	100	258						0.02									
ports per miltion	equivolents  Ni- trate (NO <sub>3</sub> )		SOLVANG						0.00									{5
	Chlo- ride (Cl)	1	₹			1.38	1.35	1.4	1.41	1.35					1-21	1.27		00
9	0, 0		KIVEK						262 5.46									
	Bicor – bonate (HCO <sub>3</sub> )		VNE Z			421	331	414	415	415 6.80					1400 6.57	402		
Month	1 550		SANT			0000	0000	0000	0000	0000					0000	0000		
M	Potas- Sium (K)							-	2°4 0°06									
	Sodium (No)							-	60		-							
	Mogne- sium (Mg)		-						68									]
	Colcium (Ca)	-							113									$\dashv$
-	1 3 S					8	8.9	8.0	7.6	7.6					0,8	8		
	Specific conductance (micrombos of 25°C)					1239 8	9 0411	1183 8	1209 7	1166								
_	Spe														8 10%	2 1076		
	Dissolved oxygen					75	2 102	·0 74	<b>8</b>	63					11 88	2 92		
_						7.8	10.2		8.2	0.9					9°It	10.2		
-	e de la					57	5 61	125	59	ħ9					25	52		
	Dischorge Temp				Dry	14.5	est 15	1,1	4.1	1.5	Dry	Dry	Dry	Dry	est 2	6.8		
	Dote ond time sompled			1952	Jen	2/6	3/6	14/2 0700	9/8	9/9	July	Aug.	Septe	Oct.	0800	12/4		

o iron (Fe), oluminum (AI), oresnic (Ae), copper (Cu), lead (Pb), manganess (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{QQ}{QOD}$  except as shawn. B Determined by addition of analyzed constituents.

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Mineral analyses made by USGS, Quality of Water Bronch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Bronch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Basaurces (DWR), as indicated

TABLE B-12

\* Field pH except when noted with a

ANALYSES OF SURFACE WATER GENTRAL COASTAL REGION TABLE B-12

	Analyzed by e		USGS		uses	uses	uses	usgs	uses	US GS	USGS	USGS	USGS	USGS	Uses	
	MPN/ml										<del></del>				220 Median 62 Max. 7,000 Min.	2
	Pid- Figgu		1,0		8	147	22	~	rd.	9.0	0.9	H	2	9.0	220	
	CO3	ν E Δ	306 104 1		8	65	73	17	96	89	85	98	306 107	9.0 701	94	
		Tatal pom			246	195	240	256	267	296	287	258		310	141	
-	Sad -		27		73	22	25	27	24	26	27	25	28	28	23	
Totol	Salved solids	20 0						420				473				
	Other constituents							to 0.03 Al 0.09 cu 0.01 Zn 0.02	Tot. Alk.		Allo alta ton	გ. ≪		Tot. Alk.		
	Silica	2	~~	<del>                                     </del>	퀽	<u> </u>	91	7,		<u> </u>	2	25	ম	쩕	ना	_
oillian	Baron		2 <u>5</u> 0.02		000	6.3	0.16	0,16	이	0.17	0.1	700	0.17	0.0	0.11	
million per million	Fluo-	E	(57.4.2)					0.02				0.0				
		NO3)	1. (5.					0.00				0.0				
parts p	Chio-	_		1.92	1.47	22 0.62	38	38	1,16	56 1.58	1.78	65	2,17	81 2,28	16 0.45	
Ē	Sul -	(80%)	CREEK					2,23				2.06				
constituents	Bicar - bonate	(HCO <sub>3</sub> )	246	4.03	3.33	158	7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	3.70	3.62	253 4.15	246 4.03	23t 3.8t	3.98	3.87	1.90	
	Carbon-	(co <sub>3</sub> )	0	00.00	0000	00.00	0000	00.00	6 0.20	0000	0000	6	0000	6 0.20	0000	
Minsrot	Potos- C	<u>\$</u>	0 7	1	5.5	0.07	3.6	3° tr	3.9			5.1		10		
	Sadium	6		2,26 0	1.87	130	38	75/8	3 t	2,04	1.09	£ 8	2.39	2.44	19	
	Mogne		23	1.93	1.78	1,16	18	1.53	19 1-55		•	1.72		104	····	
	Calcium			4,19	3:14	2-74	3.29	3.59	3.79			E   G				
	£ S	u	7.9		7.9	8,1	8.1	8. 1.	8.1	8,1	8.3	<b>1</b> 8	8.1	8.3	7.9	$\exists$
	Conductonce (micrombos		795		659	, £641	η <b>τ</b> 9	653 8	677	742 8	739	757 8	828	823	366	
		%Sof	103		%	95	801	102	46	66	119	134	93	118	ま	
	Dissolved	u dd	12.4 103		10.6	9.5	10.4 100	10.5	9.2	9.3	10.3	11.7 134	10.0	12.2	10.3	
	de a i		ૠ		52	8	57	58	62	99	74	73	<b>1</b> 15	58	23	
	Dischorge Temp		5		15	20	26	24	16	6•4	3.3	3.2	6.8	6.5	566	
	Dote ond time sompled		1957	1040	2/21 0855	3/11	4/17 1525	5/14	6/20 0645	7/17 1/4/0	8/21 1245	9/12	10/15	11/20	12/16	

a Iron (Fa), aluminum (A1), arsanic (As), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QO}{\sqrt{OO}}$  except as shawn. b Determined by addition at analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses of duplicate marthly samples made by Calif. Dspt. of Public Houlth, Divisian of Loborataries.

Mineral analyses made by USSS, Quality of Water Branch (USSS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Woter & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with e-

OF SURFACE WATER CENTRAL COASTAL REGION TABLE B-12 ANALYSES

	Analyzed by e			USGS	nses	ns <b>cs</b>	SOSO	nsas	uscs	nses	as a second	USGS	USGS	uses	USGS
	MPN/ml														
Torr	- pid n ppd			2	0	-	<b>∄</b> •0	0.3	0.3	-	-	~	-	0.2	7
	Hordness as CoCOs Total N C		_	186 22	198 20	152 19	190 24	189 20	166 9	167 5	194 10	188 12	174 13	174 8	132 17
o d	sod –			14	14	15	13	13	13	15	71	15	14	15	16
Totol	Solved solved in ppm b							236				253			
	Other canstituents					Tot. Alkalinity		Al 0.06 Zn 0.01	Tot. Alkalinity			PO <sub>11</sub> 0.00 A1 0.07 Gu 0.01 &			
اد	Boran Silica (B) (SiO <sub>2</sub> )			0.11	0.13	90°0	0.05	0.06	0.15	0.01	0.10	0.17 26	Z0-0	0.14	0.13
per million		8		<u></u>	ol .	ol _	ा	let	01	ા	ા	000	ol	ા	ol_
စ် ၂	Fluo-	(STA.										1.00			
ports per equivolents	rrote (ND <sub>3</sub> )							0.00				0.03			
edni	Chia- ride (Ci)	WEAR MORGAN HILL		7.0	8.6	6,3	6.0	6.8	5.7	5.2	7.3	8.4 0.24	6.5	6.7	9.0
u 1	Sul - fore (SD4)	EAR 1						31				32 0.67			
constituents	Bicor- bonote (HCD <sub>3</sub> )	CREEK N		3.28	3.56	150 2.46	203	3.38	180	3.25	3.67	3.52	3.21	3.31	140
Mineral car	Carban- ate (CD <sub>3</sub> )	UVAS 0		0000	0000	0.20	0000	0 0	0.20	0000	000	0000	0000	0000	0000
M	Patas- Sium (X)			0.02	0.7	0.0	0.07	1.0	0.08			1.3			
	Sodium (No)			14 0.61	15 0.02 0.65 0.02	12 0.52	13	13	12 0.52	14 0.61	14 0.61	15	13	14 0.61	12 0.52
	Mogne- S			1.52	1.71	1,28	1.85	1.53	15.23		1	1.51			
	Calcium (Co)			2.20	45 2.25	35	1.35	45	42			45 2•25			
	王 ·			7-7	7.7	<u>ग</u> •8	7-9	8.1	8 3	7.9	7.3	7.5	8 • 2	7.9	7.3
20112000	conductance (micromhas of 25°C)			398	1114	313	382	393	356	357	901	604	365	372	307
	- 6			16	96	103	96	102	9.0 10t	96	74	8.	110	86	92
	Disso			10.6	10.5	10.8	10.1	10.2	9.0	8.3	<b>†•9</b>	8.3	6.6	10.4	10.4
	Temp In OF			R	53	56	28	8	74	77	74	89	2	55	ß
	Dischorge Temp			Not											
	Date and time sampled		1957	1/16	2/20 1215	3/12	4/17	5/16 0845	6/19	7/17	8/22	9/13	10/14 1315	11/21	12/17 1145 H

d fron (Fe), aluminum (A1), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as chawn. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Laborotaries.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitam Water District (MWD), Las Angeles Dept. of Water & Pawer (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

TABLE MATER

f Field pH except when nated with a

ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Analyzed by e		тврвн	гвррн	ГВОРН	ГВОРН	DWR	LBDPH	LBDPH	Гврри	DWR	ГВОРН	Гврви	ГВОРН
	bid - Coliform d											Median	Max.	700 Min. 70
1 1	- piq - ti ngo u						75				30			
	Hordness os CoCOs Total N C		1568	2413	619	467	1708	1916	2345	1197	1182696	329	634	1546
9	E od -		85	87	111	69	87	90	60	80	85	95	87	87
Total	solved solved solids in ppm						18580				10600			
	Other constituents						Fe0.2	A 50 . 4			PO44.6			
	Silico (SiO <sub>2</sub> )	148)					23				50			
Llian	Boron (B)	(Sta					20				14			
parts per million valents per million	Fluo- ride (F)						0.0				1.3			
ا تقا	N <sub>1</sub> - trote (NO <sub>3</sub> )	BEACH	_				5.0				2.5			
parts p	Chlo- ride (Cl)	AT LONG B	8660	420.7	12.4	920	9800	15210 428.92	16,800	6800	5380	4360	3448	302.42
Ē	Sul - fote (SO <sub>4</sub> )	RIVER	-				1.78				2.64			
constituents	Bicor- bonote ( (HCO <sub>3</sub> ) (9	ANGELES RI	484	728	3.18	175	2.74	11.51	706	500	593 9.72 2	355	3.47	625 10.24
Mineral cons	Corbon-	LOS ANG	0.00	0.00	0000	25	0000	0000	0000	0000	0000	0000	0000	0000
Min	Potas- sium (K)						50				34			
	Sodium (No)		<u> </u>				181 5925				3200			
	So (1						8825							
	Mogne- sium (Mg)						4				12			
	Colcium (Ca)						386				258			
	Ξ 64	1	7-7	7.4	8.2	8.5	7.9	7.4	7.3	7.0	8.1	7.6	*	7.8
Specific	conductance (micrombas at 25°C)						26455				15015			
	ived gen %Sot		0.0	0.0		35	0	0	0	20	6.5	8 4	56	23
	Dissolved oxygen ppm %Sot		0.0	0.0		3.2	0.0	ن <b>°</b> 0	0	1.6	5.2	0	5.5	2.0
	Te a p		65	79	61	68	80	96	96	84	81	77	62	75
	Dischorge in ofs		7.5	13.0	13.0	10.5	11.3	13.1	16	11.6	13.9	14.6	46	14.5
	Dote and time sompled	1957	1/2	2/6	3/6	4/3	5/24	6/5	7/3	8/7	9/19	10/2	11/6	12/4

o Iran (Fs), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), mangansse (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{0.00}$  except as ehawn. b Determined by addition of analyzed constituents.

c Gravimetric defermination.

d Annuol madian and ranga, respectively. Calculated from analyses of duplicate manthly samples made by Colif. Dept of Public Health, Division of Labaratories.

e Minerol analyses made by USGS, Quality of Woter Branch (USGS), Pocific Chemical Consultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water & Popt. of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated \* Field pH except when noted with e-

ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Analyzed by a		HADAT	LADPH	LADPH	LADPH	DWR	LADPH	LADPH	LADPH	DWR	LADPi	LADPH	Насуп	
	bid - Coliform												Median	62 Max. 24,000	Min.6
1	- p.q. c						-5				1-5				
	0000 0003 0003						-2-				194				
			783	558	617	469	#	476	651	355	405	966	572	838	
3	S S C C C C C C C C C C C C C C C C C C		14	0	4.3	62	5 59	4	52	64	09 8	28	21	35	
Tota	solved solids in pam						1035				1388				
	Other constituents						d				P040.08 a				
	Sitica (5:02)	(24					25				20				
lion	Baran (B)	(Sta	000		0	10	1.2	0.4	7.0	0.55	0.8 1.32				
million per million	Fluo- ride (F)						0.0				0.8				
الةا	Ni- trate (NO <sub>3</sub> )	NGELES					0.01				5.0				
parts p	Chlo- ride (Ci)	AT LOS AN	190	88	720	360	6.77	256	380	333	380	430	2.23	270	
Ē	Sul - fate (SO <sub>4</sub> )	RIVER					326				398				
constit@ents	Bicar- bonate (HCO <sub>3</sub> )	ANGELES R	210	115	<u>170</u> 2.79	115	115	180	165	162	4.22	175	125	165	
Mineral cor	Carbon- ate (CO <sub>3</sub> )	LOS ANO	1.33	60 2.0	30	3.00	7.24	60 2 000	2.0	0.27	000.0	2.33	3.33	3.50	
2	Potas- sium (K)						5.6				5.8				
	Sodium (Na)						35				320				- 1
	Magne-S sium (Mg)						36 2 2 969				53				
	Calcium (Ca)			_			3.34				4.74				
	는 4a		8 . 4	8.9	8.1	80	α 4	4.	8.7	8 . 5	4.8	8 . 5	8 4 *	4.8	
o jose o	conductance (micromhos at 25°C)		ω				1562			2032	2100				
	olved ygan %Sat		17.1179	4122	13.0140	5.4187	2.0249	11.4142	8.4229	.2245	16.6199	.2234	5139	. 4225	
	1 1			10.		9 15.	-2			19		8 19.	9 12•	23	
	ge Temp		64	75	67	7.5	72	80	81	<b>8</b>	79	78	9	58	
	Dischorge in cfs		0 • 0	2.0	2.6	2 • 1	3.9	2.1	1.4	0.7	0	0.4	2.50	1.2	
	Date and time sompled	1957	1/2	2/13	3/6	4/3	5/24	6/5	7/3	8/7	9/19	10/2	11/7	12/4	

a Iron (Fe), aluminum (AI), argenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as  $\frac{0.0}{0.00}$  except as ehown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborotesties.

• Mineral analyses made by USGS, Quality of Water Bronch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Los Angelee Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with e

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LOS ANGELES REGION

	v														
	Analyzed by e		DWR	DWR	DWR	DWR	DYR	DWR	0 8 8	DWR	DWR	DWR	DWR	DWR	
	bid - Coliform d											edian 2.3	Max. 240	Min. 0.45	
	- piq		-5	15	5	-5	-5	ν,	-5	5	5	-5	5	-5	
	P N P										447191				
			459	464	435	457	429	439	432	384		460	473	464	
	sod -		31	21	19	20	22	22	31	23	35	37	33	34	
Total	Solved solved solids in ppm						740				890				
	Other constituents						Zn 0.14 a				P040.0 a				
	Sinco (SiO <sub>2</sub> )	্ৰ					2				25				
up.	Boron (B)	(वर्धम :	.60	0.94	0.56	0.85	. 85	1.30	2.64	0.80	4.2	4.8	3.52	3.62	
per million	ro- rde	(STA.	~l_	0I	0	ÇI	7.0		- 21	<u> </u>	2.04	41	6.4		
انة ا		DAM					000				0.5	_			-
parts p	z ÷ ž				o lat			iola	cla	10101	0	Outro	ωlω	210	_
9	Chio- ride (Ci)	MATILIJA	3.52	35	19	30	32	1.27	100	36	147	172	159	3.89	
č	Sul - fore (SO <sub>4</sub> )	BOVE					283				224		_		
constituents	Broor- bonote (HCO <sub>3</sub> )	EEK A	286	232	3.88	264	246	271	273	3.20	312	311	299	296	
1	Carban-E	CH	0.00	0000	0000	0.00	0.00	0000	0000	0000	00.00	0000	0.00	0000	
Mineral	Patas- Car Sum (K)	FILIJA	lo	lo	lo	lo	2.2	lc'	lo	lo	3.6	lo	IO	10	
		MAT									96				
	Sodium (No)						2.39				1 4.96				
	Magne- sium (Mg)						35				33				
	Colcium (Ca)						114				125				
	표 😘		0 8	0	80	8.0	8 2	80	9.	4.	0.8	8 0	8.0	7.8	
2,16,0	conductance (micrombos at 25°C)		1360 8	1083 8	971 6	1028 8	1000	1046 7	1189 7	943 8	1235 8	1428	1247	1198	
Ü	1 6 1		85	92	64	144	83	92	91	40		103	100	100	
	Dissolved oxygen ppm %S		9.2	• 2	9.8	Φ.	4.	Φ.	- 5	4.0	7.8	9.	0	4,	
				6		9 7	59 8	64 8	00	6	7	6 6 6	61 10	57 10	
	Discharge Temp		4 5 4	6 61	54	- 2		8	7 70	7	ω	2	2		
	Dische In c		5.4	7.6	16	8 . 2	7.3	4	2.7	i	·	1	1,	2.0	
	Date and time sampled	1957	1/9	2/13	3/12 0920	4/2	5/8	6/11	7/3	1330	9/4	10/16	11/7	12/4	

a Iran (Fe), aluminum (A1), oreenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except os ehawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses at duplicate marthly samples mode by Calif. Dept of Public Health, Division of Laborateles.

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\* Field pH except when noted with a

LOS ANGELES REGION

	Analyzed by a			ММ	GWIM	QMW.	MM	UMJ	MW	MWD	MW	M.W.D	MMD	MWD	MWD
-	bid - Coliform				. <del></del>		1.7	6,	2.	1.3	8,0	ω,		6	1.7
-	CO S E P							259 0.			0	246 0.		239 0.	1
	Hardness as CaCO <sub>s</sub> Total N C ppm ppm			396	397	396	392	383 2	370	355	353	353 2	35 <sup>th</sup>	357 2	361
	sad -			율	33	<u></u>	읔	울	돠	1,12	<b>H</b>	댴	굨	육	옭
Total	Solved solids in pom							815				762		753	
	Other constituents	(Sta 69)						ಹ				øb .	-	Tot, Alk. 118	
	Sifica (SiO <sub>2</sub> )		<u>,</u>	9.0	8.9	8.9	8.9	80	6 9 1	4.6	9.2	8	9.5	9.5	39.2
Illian	Boran (B)	VERNE		181	181	10	181		0.16	100	179		2.0		100
million per million	Flua- ride (F)	I.A V		0°0	0.02	0.03	0.02	0.02	0.02	000	0.00	0.03	0.00	0.03	0.01
ports per million equivalents per mil	Ni- trate (NO <sub>S</sub> )	AT	_	0.0	1.8	1.8	1.4 0.02	1.3	1.1	1,1	0.01	0.01	0.01	1.2	0.02
d Ainba	Chlo- ride (CI)	AQUEDUCT		3.13	3.07	3,10	3.10	3.07	3.02	3.07	3.05	3.02	105	2.93	10 <sup>t</sup> / <sub>2.93</sub>
Ē	Sul - fate (SO <sub>4</sub> )	DISTRICT		360	366	367	363	361	356	351	338	3 <sup>th</sup> 0	335	331	323
canstituents	Bicar- bonata (HCO <sub>3</sub> )	WATER DI		156	156	2.51	2.54	151 8,-5	2.33	2.12	127	126	132	2.33	2.4
	Carban- ate (CO <sub>3</sub> )			0.07	0.07	0.07	0.03	0000	0000	0.03	0.02	20.07	2 0.07	0.03	0.03
Mineral	Potas- (X)	METROPOLITAN	•	0.13	0.13	0.13	6 0.15	60.15	0.13	0.13	6 0.15	0.15	0.13	0,13	0.13
	Sadium (No)	METR		5.35	121	5.31	5.26	121	5.31	5.26	5.09	1114	113	1112	112
	Magne- sium (Mg)			35	2.8	35.88	34.5 2.84	33	2.75	2.71	33	2.67	32	2.59	32 2.63
	Calcium (Ca)			101	5.09	5.04	100	4.94	49.4	88	1.34	88	89 T	4.54	4.59
	₩ ₩		4	8 2	8.5	8.5	η·8	8.3	8.2	8,3	© 0	<b>∄</b>	8.3	± 00 ¥	π · ε
1000	conductonce (micromhos at 25°C)			1258	1285	1280	1270	1250	1220	1185	1180	1195	1175	1180	1195
	olved ygen %Sat														
							10.0								
	E o c	4		53	53	26		19	69	74	77	75	1	63	22
	Discharge Temp in cfs in aF	Not Avail-	able												
	Date and time sampled		1957	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oot.	Nov.	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$

im (Cr), reparted here on add except as shown. o ron (re), diuminum (AI), dreenic (Ae), copper (C b Defermined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Qualify of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitant (MMD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Cansultant (MMD), Las Angeles Dept. of Water Branch ( f Field pH except when nated with a

ANALYSIS OF SURFACE WATER

## ANALYSES OF SURFACE WATER LOS ANGELES REGION

	Anotyzed by e		D%.R	D%R	DWR	DWR	DWR	DWR	DWR	DWR	DY.R	DWR	DWR	DWR
	Hardness bid - Collform os CaCO <sub>3</sub> ity MPN/ml											edian 62	Max. 2400	Min. 5.2
1	- pid - pid - ppdu		5	5	۲.		L.	5	-5	-5	LC I	1	# #	4
	Hardness os CaCO <sub>3</sub> Totol N C ppm ppm		220	251	262	229	213	192	169	167	167 11	155	207	258
	Enn-		7.	23	54	17	91	17	17	17	19	19	17	17
1010	Solved solved in ppm						305				. 2			
	Other constituents	-					4				P040.08 & 25			
parts per million valents per million	Fluo- Boron Silico ride (B) (SiD2)	S (Ste 49a)	0.3]	0.05	0.50	0.11	0.4 0.12 30	0.07	0.07	0.02	0.60.06 20	0.00	0.0	800
parts pe	Chlo- Ni- ride trote (CI) (NO <sub>S</sub> )	IER NARROUS	3.47	41	218	19	14 4.0	0.31	0.25	0.25	0.28 0.05	10	15	21
Ē	Sul - fate (SD4)	WHITTI					53		-		36			
canstituents	Bicor- bonote (HCO <sub>3</sub> )	ΑT	274	230	234	3.67	3.54	3.25	3.02	176	3.12	174	210	246
Mineral ca	Corban- ate (COs)	CREEK	0.00	00.0	0.00	0000	0000	0000	0.00	000	0.00	0.00	0000	0000
Min	Potas- sium (K)	MISSION					2.4				0.06			
	Sodium (Na)	×I					19			_	18			
	Mogne- sium (Mg)						1.32				0.74			
	Colcium (Ca)						2.94				52			
	표 🛶		7.6	7.9	7.6	7.3	7-7	7-7	7.9	7.9	0	7.7	€ 8	7 • 8
000	conductonce (micromhos at 25°C)		928	644	1224	524	495	425	406	372	354	375	422	531
	1 7		71	75	73	73	78	80	95	86	109	90	109	83
	Dissolved axygen ppm %Sc		7.4	8	7.0	7.3	7.6	7.5	8.4	8.0	10.0	0.6	11.6	9.0
	Te ap		57	95	64	09	62	99	72	99	89	61	55	52
	Discharge Temp in cfs in aF		2.9	3.2	0.4	3.2	3.4	2.7	1.9	6.0	0.27	0.13	0.70	0
	Date and time sampled	1957	1/8	2/7	3/6	4/9	5/7	6/11 0730	7/2	8/6 0715	9/4	10/8	11/6	12/3

a Iron (Fe), aluminum (AI), orsanc (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by oddition of analyzed constituents. c Gravimetric determination.

d Annut median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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ANALYSES OF SURFACE WATER

TABLE B-13
ANALYSES OF SURFACE WATER
LOS ANGELES REGION

		Analyzed by e			LADWP	LADWP	LADWP	LADWP	LADWP	LADWP	LADWP	LADWP	LADWP	LADWP	LADWF	LADUT
		MPN/mi														
	1	- pia - pia - pia			8	7	6	크	9	7	2	7	7	7	7	7
		N CO3											0			
		Hardr as Co Total PPm			98	80	89	96	96	88	76	74	79	93	88	48
	0	sad -			145	142	无	44	无	£	克	142	4	无	142	£
	Tatal	Dts- solved salids in ppm		•	192 <sup>b</sup>	205 <sup>b</sup>	210 <sup>b</sup>	227 <sup>b</sup>	225 <sup>b</sup>	205 <sup>b</sup>	166 <sup>b</sup>	163	183°	210 <sup>b</sup>	185 <sup>b</sup>	182 <sup>b</sup>
		Other constituents	70)						Fe 0.08				Fe 0.08 NH3 0.02			
		(201S)	(Ste		22	23	25	27	<u>81</u>	72	61 67	12	리	2	8	77
	illian	Baron (B)	$\perp$		94.0	0 T	(A)	0.54	0.52	0.53	0-33	3	25.0 5	T-0	0.55	3
	millian per millian	Fluo- ride (F)	O DN		0.04	0.09	0.09	0.03	0.0	0.04	0.0	200	9.0	9.0	9.0	0.5
7	parts per millian equivalents per mil	N1- trate (NO <sub>3</sub> )	FERNANDO		000	000	000	0.01	000	000	000	000	0.02	000	000	000
ANGELES REGION	equiv	Chla- ride (CI)	NEAR SAN		16	200-56	0.62	20 0.56	21 0.60	20	17	0.42	18	20 0.51	18	0.42
THENE	E .	Sut - fate (SO <sub>4</sub> )	AQUEDUCT		0.52	0.56	30	32	28 0.58	28	0.41	0.42	0.45 0.45	25 0 0 5 5 2	24 0.50	0.54
FOS	constituents	Bicar – banate (HCO <sub>3</sub> )			11.3	115	117	127	2.15	118	1.59	1.59	111	2.13	111	1.82
	Mineral co	Carban- ate (CO <sub>3</sub> )	MONO-OWENS		0.10	0.10	0000	0.15	0.10	3.0	0.03	0.03	0.07	0.13	0.13	0.13
	Min	Potos- sium (X)	MOM		4.0 11.0	4.6	4.5	5.0	6.4 0.16	5.0	3.1	4,1 0,11	3.2	4.8	3.8	5.2
		Sadium (Na)			1,18	38	38	1,80	1.87	36	30	1.16	1,40	37	32	31
		Magne- sium (Mg)			5.43	5.5	6.6	6.8	6.4	6.5	5.3 0.43	800	5.0 0.40	6.53	6.53	5.8
		Calcium (Ca)			1.30	1.30	1.25	1.35	1 58 1 40	1.29	1,10	1.10	1.15	26 1.30	1.25	1.20
		I 64			8.5	₽•8	8.3	₹.8	<b>1</b> 0	8,3	8.0	7.9	8.5	<b>д</b> •8	8.6	8.1
	Specific	conductonce (micrombos at 25°C)			321	3 <sub>t</sub> 13	348	361	37 <sup>t</sup>	3£	280	275	292	357	325	31,7
					85	83	98	98	87	85	8.	88	ı		R	ಜ
		Dissolved axygen ppm %Sa			10.6	9.8	9.7	9.2	80	8.0	0 %	7.6	1	8.9	7.8	10.4
		Te or			t <sub>3</sub>	3	S.	55	8	99	72	73	•		52	641
		Discharge Temp			914	455	455	1459	मृटेम	h22	<b>#</b>	Off-i	#	954	09 <sub>11</sub>	1465
		Dote and time sompled		1952	1/22	2/19	3/19	4/16 0011	5/21	6/18	7/24	8/20	9/17	10/22	11/26	12/17

a Iran (Fe), aluminum (AI), areenic (Ae), capper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as  $\frac{0.0}{0.00}$  except as ehown.

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field all except when noted with a

ANALYSES OF SURFACE WATER LOS ANGELES REGION IABLE D-13

	Analyzed by a			DWR	DWR	DWR	DWR	DWR	DWR	DWR				
	Abrdness bid Coliform das CaCO <sub>3</sub> 11y MPN/ml										Wedian 62	Max. 7,000	Min.	
	- piq - kii - wad u			5	₹.	5	₹.	2	25	7				
	Aness acos N C					-	+ 37.7			+				
I	[ 1			560	540	518	264	791	860	924				
	Sod -			29	27	29	27	32	22	28				
Total	balved solids in ppm			1053			<del>1</del> 96							
	Other constituents						P01 0.08 a							
	Silico (\$0.0 <b>2</b> )			<b>60</b> %	0.	77.	20							
lion	Boran (B)			1.68	8	1-74	2.0	1.96	2.0	2.0				
miltio	Fluo- ride (F)	~		1.0			1.2							
ports per miltion volents per mil	Ni- trate (NO <sub>S</sub> )	160		000			0.0				-			
ports per million	Chlo- ride (Cl)	FIRU (ST		113	1.10	1,13 1,13	£12.	82 2.31	63	1.95				
Ē	Sul - fate (SO <sub>4</sub> )	NEAR 1		49 <u>5</u>			520 10.83							
stituants	Bicar - bonate (HCO <sub>S</sub> )	OREEK N		1,02	236 3.87	216 3.54	3.74	289	317	14-79				
Mineral constituents	Carban- ale (CO <sub>3</sub> )	PIRU 0		0000	0.00	0000	0.00	0.00	0000	0000				
¥	Potas- sium (K)			5.13			5.8 0.15							
	Sodium (Na)			105			4.26							
	Magne- S sum (Mg)			62 5.10 4			- T							
	Colcium (Ca)			122			13.7 7.8.2							
	I G			8.1	<b>⊅</b> •8	7.9	8.3	7.9	7°8	8.3				
0,1000	conductonce (micramba at 25°C)			1412	1340	1356	1321	2008	1800	1988				
				122		102	104	8.	118	66				
	Dissolved oxygen ppm %Sa					6	0.6	0.6	12.0					
				70 11.0	72	- K	73 9	61	59 12	48 11.5				
	Discharge Temp in cfs in aF			est 15	sst 20	est 0.03	est 40	2	est 10	est 3				
	Date and time sampled		1952	0001	7/7	8/5	9/3	10/7	11/4	12/2				

o Iron (Fe), aluminum (A1), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Za), and chramium (Cr), reported here oe 20 except as shown.

b Determined by addition of analyzed constituents. c Grovimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Colif. Dept. of Public Health, Division of Laborates.

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\* Field pH except when noted with a

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-13

REGION
ANGELES
1.05

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
_												edian 230	Max. 7000	Min. 12	
	Did - Ca		5	<u>r</u>	-5-	5	-5	-5	-5	7	40	-5	7	5	$\dashv$
	N C D M										63				
1	Hardness os CaCD <sub>3</sub> Total N C ppm ppm		208	255	290	258	249	272	286	286	313	333	215	253	
G.	sod -		30	33	53	36	35	38	45	38	30	58	35	38	
Total	solved solids in ppm						490				625				
	Other constituents										. 2 B				
	Other						4				P041.2				
	(SiO <sub>2</sub> )						2				9				
lion	Baran (B)	(64)	0.17	1110	0.26	0.16	0.18	0.19	0.23	0.19	0.80.20	0.14	0.14	0.20	
million per million	Fluo- ride (F)	(Ste					0.03				0.0				
15	Ni- trote (NO <sub>3</sub> )						6.5				9.0	-			
ports p	Chio- ride (CI)	NARPOV'S	33	1.30	92 2 5 5 9	1.52	1.35	1.64	2.12	72 2.03	60	246	1.18	1.64	
c_	Sul - fote (\$04)						103				120				
constituents	Bicar- banate (HCO <sub>S</sub> )	WHITTIER	3.29	254	3.97	256	250	234	235	265	305	3.75	220	223	
Mineral cons	Carbon - ate (CO <sub>5</sub> )	DO AT	00.00	00.00	000	0000	0000	0000	0000	00.00	00.0	0000	0.00	14	
Min	Potos- Sium (K)	NOH O				-	7.1				6.1				
	Sodium (No)	퓔					63 7-1 2-7 <b>2</b> 0-182			-	64				
	Mogne- sum (Mg)						1.48				24				
	Colcium (Co)						3.49				86				
-	S H <sub>a</sub> ⊌		4	6.	0	8.1	8 2 3	7.7	4.	8.1	4	6.	7.7	8.1	
0.	conductance (micromhas		607 7	773 7	1225 8	52 <sup>th</sup> 8	8 689	829 7	1019 - 8	917 8	881 8	1647 7	588 7	737	
			24	68	71   1	18	.01	73		4,	10	08	71	11.	
	Dissolved oxygen ppm %So		4.	7.0	6.2	1.51	9.610	7.0	8.4115	7.7	8.4110	8 0	9.9	12.0111	
			63	58	73	62 1	64	65	90	49	98	61	99	53	
	Dischorge Temp in cfs in 0F		5.8	5.6	6.2	4.1	5.3	4.5	5 • st	5.3	3.7	2 • 2	4.90	0.9	
	Date and time sampled	1957	1/8	2/7	3/6	4/9	5/7	6/11	7/2	8/5	9/4	10/8	11/6	12/3	

o Iron (Fa), aluminum (Al), arsenic (Aa), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Gr), reported here as 000 except as shown.

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ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Andiyzed by s		DWR	DWR	DWR	DWR	DWR	DVR
	Hordness bid - Celiform des CoCO <sub>3</sub> 117 MPN/ml							
1	- bid - ity n ppm	-5	-5	5	5	5	5	8
	000 N C PP M				0			
	1 1	171	169	157	162	178	200	224
	80 d -	9.5	12	12	12	13	10.7	ω ω
Total	Dis- salved salids in ppm				218			
	Other canstituents	50d)			PO <sub>th</sub> O <sub>o</sub> O a	-		
	Silice (SiO <sub>2</sub> )	(St			2			
High	Baran (8)	0.12	0.09	10°0	0.10	10°0	0.10	0 0 0
parts per millian valents per mill	Flug- ride (F)	HOUSE			0.02			
per ths p	NI- trate (NO <sub>9</sub> )				1.5			
equivolents per million	Chla- ride (Ci)	AZUSA POWER  7  0.20	0.11	0.11	4 tro	5.0 0.14	0.20	00.25
Ē	Sul - fote (SO <sub>4</sub> )	AT			27			
constituents	Bicar S benete f (HCO <sub>3</sub> ) (9	198 3.25	3.15	176 2.88	3.20	3.57	23 2 80 3 80	3.61
	Carbon – E		0000	0000	0000	0000	0000	0.57
Mineral	Patas- Ca sium (K)	SAN GABRIE	10	10	108	10	10	10
	Sadium P.				11 ° °			
	Mogne- S sum (Mg)				12 0.99			
	Celcium (Ce)				2.25			
-	_ S • •	7.9	<u>.</u>	8.3	8.0	&	8.1	о «О
0.000	conductonce (micrombos of 25°C)	372 7	376 7	3 <sup>48</sup> 8 <sup>4</sup> 6	330 8,	417 8,	380	41.2 8
	lved co	92		93	89	82	102	86
	Dissolved oxygen ppm %Sot	98		8.0	8.0	8.5	11.0	10.2
		63	119	73 8	e R	9 2	54 1	1 22 1
	Discharge Temp	est 30 6	est 30 (	ost 10	est 30	走	est 45	8
	Date and time sampled	1957 6/11 0830		8/6 1530	9/4	10/8	11/6	1445

a Iran (Fe), oluminum (Al), orsenic (As), capper (Cu), tead (Pb), manganess (Mn), zinc (Zn), and chramium (Cr), reparted here as  $\frac{QQ}{\Delta O0}$  except as shown. D Determined by addition of analyzed constituents.

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f Field pH except when noted with a

ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Anciyzed by a						•											
	Coliform APN/ml																	-
	Colif																	$\dashv$
	os pid-									<del> </del>							<del></del>	-
	Hardness os CaCO <sub>3</sub> Tatai N.C. ppm ppm				_												 	
	sod -																	
Total	Solved solids in ppm																	
	Other constituents	-1																
	Silico (SiO <sub>2</sub> )	50a																
L Loil	F	(Sta																
million per million	Flug- ride (F)																	
parts per million equivalents per mill	1 1	AZUSA																
equiv	Chie- ride (CI)	NEAR																
Ē	Sul- fate (\$04)	RIVER						-										-
constituents	Bicar- S banate (HCO <sub>3</sub> ) ((	GABRIEL																
	Corbon Bi	SAN GAB																
Mineral	Patas- Ca sium (K)	ωI			· <u>-</u>													
	Sadium Po (No)									<u> </u>	<del></del>						 <del></del>	$\dashv$
	So (9																	$\dashv$
	Magne- sium (Mg)																	$\dashv$
	Calcium (Ca)																	4
	DOC BH					<u> </u>											 	$\dashv$
	conductonce (micromhoe																	
	olved ygen %Sa																	_
	ge Tem												No report					
	Discharge Temp				Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	No r	Dry	Dry	Dry		
	Date and time sampled		į.	727	0800	2/7 0900	3/7 0830	4/10 1150	May	6/11 0830	July	Aug	Sept	00t.	Nov.	Dec.		

a Iran (Fe), aluminum (AI), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zmc (Zn), and chromium (Gr), reparted here as  $\frac{0.0}{0.00}$  except as ehawn.

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ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Analyzed by e		DWR	DWR	DWR	DWR	DWR	DWR				·					
	o ppm MPN/mi											Median	7 7 M	62	Min.		
-	D - Pig		5	5-	5	125	5	- 5								 	
	S COS																
	Hardness as CaCO <sub>S</sub> Tatal N C ppm		293	307	258	383	236	375									
	Sad -		29	27	21	39	26	34									
Total	bis- solved solids in ppm						380										
	Other constituents						d										
	Silico (SiO <sub>2</sub> )	50)					20										
100	6_	Ste	0.09	0.03	0.18	1.26	0.08	0.15									
r million per million	Fluo- ride (F)						0.01										
60	1 _ )	N.S					0.02										
parts p		NARRO	0 0	7 12	712	2/2		4/7									
	5 5 5	WHITTHER NARROWS	69.1	1.47	31	3.16	37	84								 	
ē	Sul - fore (SO <sub>4</sub> )	WHIT					108										
canstituents	Bicar- bonate (HCD <sub>S</sub> )	R AT	3.16	221	3.59	154	3.16	3.39									
1	Carban- ote (CO <sub>3</sub> )	L RIVER	0000	0000	0000	0000	0000	0000									
Mingral	Potos- Sium (X)	GABRIEL					5.3										
ļ	Sodium (Na)	SAN					.70									-	
	So - So (S						1.48										
	Mogne- sium (Mg)							·								 	
	Caicium (Ca)						3.24		_								
	표 🚾			е •		8.2											
	conductonce (micromhos of 25°C)		861	828	699	1302	581	1117									
	5		112	126	80	96	107	88									
	Dissolved osygen		11.4	2.5	7.2	9.6	φ	0.									
	Temp In OF		59 1	60 1	70	09	79	99									
	Discharge Temp		0 8 t	7	0.25	50 est	Triokle	Ponded	dry	dry	dry	dry	dry	dry			
	Dote and time sampled	1957	1/8	2/7	3/6	4/9	5/7	6/11	July	Aug.	Sept.	00 t.	Nov.	Dec.			

o Iron (Fe), aluminum (AI), orsenic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chramium (Cr), reported here as 00 except as shown. b Determined by addition of analyzed constituents.

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8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (LBDPH) or State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER LOS ANGELES REGION TABLE B-13

	Analyzed by e		DWR	DWR	
	Coliform d MPN/mi		Median 6.1	Мах. 62.	Min.
	piq - C		1,5	-5	
	N COS				
	Hardness as CaCO <sub>3</sub> Tatal N C ppm ppm		391	1637 <b>130</b>	
	Sout - Far		±€	32 1	
-	D S E		1800	2849	
ļ.	solved solids in ppm		, H	2 8	
	Other constituents			P040.12 a	
	(2018) (S10 <sub>2</sub> )		20	30	
00	6	(991	0.4	.12	
million per million	Fluo- B	STA	0.81	0.06	
9					
ports p	rate (NO <sub>3</sub> )	COL	0.5	1.5	
eduly	Chla- ride (CI)	AT BLUE	2.59	150	
=	Sul - fote (SO <sub>4</sub> )	RIVER	949	828	
constituents	Bicar S banate (HCO <sub>3</sub> )	GLARA RI	283	374 1828 6.1438.06	
	Corbon - Br	SANTA CL	0.00	9 0000	
Mineral	Potos- Co- sum (K)	- ISI	4.7	5.0	
	Pat (c		215	365	
	Sodium (No)				
	Magne- sum (Mg)		102	204	
	Colcium (Ca)		189	320	
	표 ы		8 2	8 7	
	Specific conductonce (micromhos at 25ªC)		2061	3279	
			2		
	0 >			10.8 129	
	i de		73	77	
	Discharge Temp in cfs in PF		4.5	0.43	
	Date and time sampled	1957	5/6	9/3	

o Iron (Fe), aluminum (AI), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annul median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (Laboration of Water Resources (DWR), as indicated \* Field pH except when noted with a

LOS ANGELES REGION

		Anolyzed by e		DWR	DWR.	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
		MPN/mi											Median 18	Max. 620	Min. 0.6	
	Tur	- piq u		-5	-5	50	-5	-5	-5	-5	7	15	-5	-5	5	
		N COS										OCOT				
-		Hardness os CaCO <sub>3</sub> Total N C ppm ppm		1182	943	882	725	807	972	1056	1137	1317 1010	1180	1125	1129	
-	P	sad –		39	35	30	31	33	36	40	4	40	43	4	42	
	Total	solved solved in ppm				1690		1580				2732				
		Other constituents	(94					ď				Pr.40.0				
		(3:0'2)	STA.					99				20				
	lan	Boron (B)	LINE (	-24	0.80	09.0	0.57	0.80.72	.94	90	13	1.56	.36	2	1.12	
million	r millian	Flug-			<u> </u>	<u> </u>		8 0				1.0				
per m	s per		0			rV4.										
ports per	equivolents	rrote (NO <sub>5</sub> )	TURA			2.5		0.5				1.5				
	edni	Chlo- 7108 (C1)	VENTURA	182	3.33	84	2.20	2.45	128	161	209	232	225	194	196	
			A	Įv.	Im	200	10	- 1	100	4	الا	<u> </u>	10	- In	lv.	
	8.	Sul - fote (SO <sub>4</sub> )	-2			17.30		804 16.76				1638 34.10				
	Constituents	Bicor- bonofe (HCO <sub>3</sub> )	R AT	386	331	351	267 4.38	293	364	348	300	372	335	368	342	
- 1		Corbon- ote (CO <sub>3</sub> )	RIVER	0.00	0000	0.00	00.0	0.00	0.00	0.00	0.00	00.0	0.00	0000	0000	
2	MINBRO	Polas- Co sium (K)	LARA	10		No		0.12	10			270				
		e (	TA CL			2 0 2						13.0719.830.		<del></del>		
		Sodium (Na)	SANT			176		188	-			719.				
		Mogne- sium (Mg)				111		7.56				15.0				
		Colcium (Co)				171		172				266				
		i e		Φ,	ω,	100	•1		~	-1	8 • 4	10	~	<u>.</u>	0.8	
-	2	0 1				00	60	00	4, 00	- <del>C</del> C		Φ	- 8	8 8		
	Specific	(micromhos at 25°C)		3378	2519	2164	1890	1862	244	275	3484	3229	350	2959	2915	
		ved en %oSat		81	129	88	123	124	113	114	102	102	107	130	106	
		Dissolved oxygen ppm %Sat		4.	5.0	8.6	2.0]	1.0	0.0	4.6	0.6	8 4	0.0	2 • 4	2.0	
-				8	- "	2	3	2 7	4	6	· · ·	79	67 10	64 12	50 12	
-		ts In		6	4,	2	4	7	7	80 7	7	.43 7	.466			
		Dischorge Temp		-	4.0	16.1	10.	4	2.04	c	0.45	0	0	1.0	1.05	
		Dote and time sompled	1957	1/7	2/7	3/4	1000	5/6	6/10	7/1	0060	9/3	10/7	11/4	12/2	

a iron (Fe), aluminum (A1), orsenic (Ae), capper (Cu), lead (Pb), munganese (Mn), zinc (Za), and chromium (Cr), reparted here as 200 except as shown.

b Determined by addition of analyzed constituents. c Gravimetric determinotion,

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropalitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LADPH) ar State Department of Water Resources (DWR), as indicated f Field pH except when noted with e

ANALYSES OF SURFACE WATER

LOS ANGELES RAUION

		Analyzed by e		and	DYR	DWR	DWR	DWR	DWR	DYR	DWR	DWR	DWR	DWR	DWR	
	7			.0	Ē	D	0	Q	Ω	Q	Q	Ö				-
-		MPN/mi				10							Kedian 62	Max. 2400	2.3	
-	Tur	Edd - F		2	1	75	2	1	-5	-5	1	7 - 5	1.5	30	2	_
		Hardness as CaCD <sub>3</sub> Tatal N C ppm ppm		756		8	869	893		6	8	807 557	770	5	6	
		sod - o		25 75	26 84	27 62	26  86  -	27 8	27 878	29 82	28 77	26 80	28 77	27 77	28 87	
	Total	solved so				1117		1635				1364		1370		
												<b>d</b>				1
		Dther constituents										P040.0				
		Other co	~					e¢.				P04				
		Si)ica (SiD <sub>2</sub> )	a Wea)					30				30				-
	lian	Baran S (B)	(Sta	. 81	[]	0.74	00	0.80	0.94	0.84	0.77	1.00.84	0.80	1.04	0.92	
mullion	per million	Flua- ride (F)						0.04	<u> </u>			1.0		7.000		<u>ا</u> .
parts per	1 1	trote (ND <sub>3</sub> )	4			4.0	·	5.5				2.0		2.0		0
	equivalents	Chla- ride (Ci)	L PAULA	212	37		43		34.	20	74		31		40	
1			25/01/2	1.95	2.37	507 53	61	823 85 .14 2.40	7.34	2.20	2.09	724 .08	82	72 72 2.03	2.40	
2	uls In	Sul- fate (SO <sub>4</sub> )	NEAK			IC.		17	ole.	0:101		15	WIV.	5 13.88	c I N	
701000000000000000000000000000000000000	constituents	Bicar – banate (HCD <sub>3</sub> )	FIVER	321	304 4.98	284	316	293	299	282	285 1,66	305	273	327	340	
	Mineral co	Carbon- ote (CO <sub>3</sub> )	CLANA I	0.0	0	0.00	00.0	0.00	0.00	0.0	0.00	0.00	0.00	00.0	0.00	
1	Z Z	Potas- sium (K)	SKITTA C			4.9		6.2				5.7		6.1		
		Sadium (Na)	· S	-		109		156				13:		130		
		Magne- S sium (Mg)				58		32			-	5-17		5.67		
		Calcium (Ca)		_		1784		211				200		9.78		
-		Hd Ca		<u>.</u>	7.4	ri.	9.		4.	. 2	7	. 2	7	7.6 1	7.	- 3
	01,10	canductance (micramhas at 25°C)		821 7	9,.6	403	58	1818	2028 8	8 676	1919 8	1603 8	1894 8	1621 7	1862 7	- 1
	Spe			69 18	LC.	34 14	20	9	20	9 19	30 19			7	87 18	
		Dissaived axygen ppm %Sat		8	-6	4.	0.	.4 11	C	.0 12	13	2.0 141	.5 101	•2 10	0.6	- 3
		E o		50 7	11 10	61 8	- 10	70 10		5 11	11 9/	- 5	6   6	61 10	58 3	
		Discharge Te			r2 +>		20 6 st		رد ب <u>ې</u>	20 7	5 7	12 7		0 +	20 5¢	- 5
				e) e	C 8	125 est	e 3	30 est	25 est	2 S	<u></u> ಬ	es D	10 est	e s	2 8	7 (20) Classical (A1) constitution (A2) (A2)
		Date and time sampled	1957	1/7	2/7	1/4 1915	2/8	6/6 1:45	6/10	1200	8/5 1130	9./3	10/7	1305	12/2	(Fa)
		35	1	ПП	2.2	~ [	7. 7	7	57	Į. m	ಪ ಗ	57	7 7			

iran (te), aluminum (Al), arsanic (Ae), copper (Cul, laad (Pb), manganese (Mn), zinc (Zh), and chromium (Cr), reparted here as 🚾 except as shown.

b Determined by addition of analyzed canstituents.

c Gravimatric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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Woter to Power (LADWP), City of Los Angeles Depi of Pub Health (LADPH),

LOS ANGALES REGION

	Analyzed by e			DWR	DWR	DWR	DWR	DWR	DWR	DWR							
	bid - Caliform										Median 62	Hax.	230	Min.	23		
1 2	- piq Lita			-5	-5	-5	7	5	-5	2							
	D Z						365 135										
				332	334	319	365	419	181	1452							
	sad -			26	27	35	<b>Ξ</b>	717	35	34							
Total	salved salved in ppm c			523			694										
	uents						«d										
	Other constituents						0										
	Other						Pot poo										
	Silica (SiO <sub>2</sub> )						2									 	 $\dashv$
100	Baran (B)	116e)		0.26	0.28	0-39	0.68	77-0	0.68	事							
millian per millian	Flua- ride (F)	J.T.A.		0.02			0.03										
القا	rote (NO <sub>3</sub> )	7LA (6	-	0000			0.02										
parts pi	2 5 2	~.			.9	٦.							_				 -
9	Chia- ride (CI)	SANTA		35	0.76	1:47	2 46	3.05	2.62	1.89							
Ē	Sul - fote (SO <sub>4</sub> )	HENR		260			265										
canstituents	Bicar- banate (HCO <sub>3</sub> )	CREEK		3.96	245 4.02	260	1,60	411	392	# CO							
canst		-41		0.00	0000	00.00	0000	0000	0000	0000						 	$\dashv$
Mineral	Carban- ate (CO <sub>3</sub> )	TA PATE.			lo 	10		0	lo	lo .						 	 _
	Patas- Sium (X)	SAMT		1.00			2.2										
	Sadium (Na)			2.31			1118										
	Magne- s.um (Mg)	_		315			## ##:3										
	Calcium (Ca)			3.19		*, 11 *	4.59									 	
	H &			80	۵ 2	8.1	8	8.3	8,1	<b>Q</b>			_				-
Sc.f.c	(micrambos at 25°C)			842	650	186	1175	1418	1233	1222							
Sa				104	107	312	109 1:	105 1	1001	99 1							
	Dissolved axygen ppm %Sat								8,8								$\dashv$
				9.5	9.6	9.5	3 10.0	10.0	10.8	5 10.5							
-	oe Ten			89	2	196	89	179	54	55							
	Discharge Temp			4.7	1,00	<b>ተ•</b> 0	†•°0	0.8	4.2	1.5							
	Date and time sampled		1957	6/10 1215	7/1 1230	8/5 1230	9/3	10/7	11/4	12/2							

o Iron (Fe), aluminum (A1), arsenic (Ae), capper (Cu), lead (Pb), manganesa (Mn), zinc (Zn), and chromium (Cr), reparted hare as  $\frac{60}{000}$  except as ehawn. b Determined by addition of analyzed constituents.

c Gravimetric defermination.

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8 Mineral analyzes made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWO), Las Angeles Dept of Water & Power (LADWP), City of Las Angeles Dept of Pub Health (LADPH),
Lang Beach Dept of Pub Health (LBOPH) or State Department of Water Resources (DWR), as indicated

f Field gH except when noted with e-

ANALYSES OF SURFACE WATER TABLE B-13

20
KEGI
ANGELES
LOS

		Analyzed by e			Dec	OJE	DWR	DwR	DWR	DWR	DWR					
	7	s bid - Caliform 3 1ty MPN/mi										edian 6.2	700 7	M15		
-		D-bid -bid -bid -bid -bid -bid -bid -bid			5	-5-	5	r,	τ,	去	5					
		Hardness as CaCD <sub>3</sub> as CaCD <sub>3</sub> ppm ppm						235								
		Hardness as CaCD <sub>3</sub> Totol N C			505	557	941	81Th	411	345	622					
	à	sod -			28	25	33	35	33	42	35					
	Total	Solved solved in ppm			प्रहरू			874								
		Other constituents						PO1, 0.1 a								
		Silico (SiO <sub>2</sub> )			0.	O)	-0,	77		Α.	Φ.					
c	illion	Boron (B)	g		1.50	1.52	1.96	2° tt	2.2	3.12	2.26					
۳. اوا	per m	Fluo- ride (F)	Ę-i		0.05			1.2								
ports per millian	ents	rrote (ND <sub>3</sub> )	OPE (		0.00			1.5								00
lod	equivolents per million	Chla- ride (Ci)	R FILL		5th	28	2.74	3.30	3.58	154	154					00
	=	Sul - fote (SD <sub>e</sub> )	M IE		108			300 111								
	constituents	Bicor- bonate (HCO <sub>3</sub> )	PE CRUEK		254 4.13	12.77 14.21	243	260	3.8	222 3.64	265 11.34				<u>_</u>	
	Minerol con	Carbon- ate (CO <sub>3</sub> )	533		0000	0000	0000	0000	0000	000	00.0					
	M	Polas.			3.5			3.8								7
		Sodium P (Na)			3.96			711					·····		, .	
		Magne- sium (Mg)			3.72			24								
		Colcium (Co)			128			140								
-		£ 64			7-9	7.8	0.8	8.0	8.1	8.5	7.7					 - 9
	Specific	conductance (micramhas			1275	1408	1338	1200	1326	1067	1718					
					101	117	142	116	156	113	106				-	
		Dissolved oxygen			0.6	4.6	11.7	8°6	14.0	12.0	11.0 106				_	
		de a of	-		74	31	79	75	2	55	22			1-0-4-		
		Dischorge Temp			2.0	0.0	0.5	0.1	0.5	00	0.1					) windiamile
		Dote and time sompled		1957	6/10 1100	7/1	8/5	9/4 1530	10/7	11/4	12/2					o long (Fe) aluminum (Al) access (C.) Land (Bh)
-			4							B 86						_ ,

o Iron (Fe), aluminum (AI), orsenic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zh), and chramium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as ehawn. b Determined by addition of analyzed constituents

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\* Field pH except when noted with \*

using itaps of Water & Power (LAGWP), City of Los Angeles Dups of Pub Health (LAGPH),

LOS ANGELES REGION

		_													
	Analyzed by e			DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR		
	Coliform MPN/mi		_											Median	Max. 700 Min.
T 20	n ppm			5	5	50	-5	5-	-5	-5	17	-5	13		1
	N COS											248			
				503	984	375	1478	<b>₹</b>	06 <sub>1</sub>	495	438	516	η <b>5</b> 9		246
ď	god -			12	21	22	22	22	20	72	22	20	26	_	17
Total	solved solved in pom					556		069				820			427
	Other constituents	1						eć				Pot 0.0 a			
	Silica (SiD <sub>2</sub> )	(1)						8				2			ជា
Ilion	Baron (8)	(Sta		0.55	0.46	히	0.51	94	9.0	0.53	0.54	0.62	0.82		0
per million	Flug- ride (F)							0.0				0.0			0.01
i i i	trate (NO <sub>S</sub> )	URA				20000		0.01				1.5			2.9
ports p	Chlo- ride (Cl)	NEAR VENTURA		200	59	1.24	60	1.61	57	57	58 1.64	62	174		0.51
ē	Sul - fote (SO <sub>e</sub> )	IVER N				169		226				276 5.74			3.12
constituents	Bicar- banate (HCO <sub>3</sub> )	江		1.98	292	286	314	23°±	299	312	259 4.25	328	373		2.35
	Carban- ote (CO <sub>S</sub> )	VENTURA		0000	0000	0000	0000	0000	0000	0000	0000	0000	0000		000
Mineral	Pates- C Scum (K)					2.3		1.6				2.3			0.07
	Sodium (No)					2.09		2.76				61			2 <sup>t</sup>
	Magne- S sum (Mg)					2.79 2		34 2.79 2				3.04			20
	Calcium (Ca)					7 69 1		121	-			146			3.27
JJ	H w			7.2	8.0	8.2	707	8.2	7.4	7.5	8.1	7-7	7.5		7.3
Specific	conductonce (micromhas at 25°C)			1136	1132	892	9111	1010	1094	1166	1088	1207	1613		597
				8	106	92	147	142	147	128	152	131	54		,
	Dissalved axygen ppm %Sa			9.9	53 11.5	0.6	65 14.0 147	68 13.0	72 13.0	11.2	130	11.4	2 • 0		1
	Te a o o r			52	53	63	65	99	72	73	74	73	7		67
	Discharge Temp in cfs in of			†°0	80	10	1.9	2.9	0.2	Ponded	0.2	Ponded		Dry	est 40 67
	Date and time sampled		1957	1/7	2/7	3/4 1330	1200	1,400	6/10	7/1 13 <sup>4</sup> 5	8/5	9/3 1645	10/7 13 <sup>4</sup> 5	Nov.	$\frac{12/16}{1550} \bullet \text{st th} 0 67 597 7.3 \frac{66}{3.27} \frac{20}{1.68} \frac{20}{1.004} \frac{24}{0.07} \frac{2.7}{0.00} \frac{0.04}{2.35} \frac{149}{3.12} \frac{150}{0.51} \frac{18}{0.05} \frac{2.9}{0.01} \frac{0.4}{0.05} \frac{0.02}{0.01}$

hara as ago except as shawn a Iron (Fe), aluminum (AI), arsenic (As), capper (Cu), b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropalitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept of Pub Health (LADPH), Lang Beach Dept of Pub Health (LBDPH) ar State Department of Water Resources (DWR), as indicated

\* Field pH except when noted with e



CENTRAL VALLEY REGION

		Anolyzed by e		UsGs	U.303	UsGs	cticu	Usas	USGS	Usaci	ensu:	U.U.	نتندرا	eth cu	537	is so in	Chic U	Uses	Usin
		bid - Coliform ity MPN/ml																	
	Tur	- pid Kai					0	<i>V</i>									D D		0
		Hordnese ac CoCO <sub>3</sub> Total N.C. ppm								77				_				0	
_				- 25	25	27	28	<u> </u>	25	25	277	- 23	22	25	22	19	19	8	2
-	Per	e cent							·							25			
L	Total	solved solids in ppm (c)		[1]	42	13	719	52	777	14.3	917	147	127	=	707	77	34	38	34
		Other constituents														Fe 0.01 Zn 0.12 Al 0.02 a			
		Silica (SiO <sub>2</sub> )					-												
	lion	Boron (B)																	
million	per million	Fluo- ride (F)	. 22d)					-											
ports per million	equivolents	Ni- trote (NO <sub>3</sub> )	FAIR OAKS (Sta																
	equiv	Chio- ride (CI)	PAIR O																
	<u> </u>	Sul - fore (SO <sub>4</sub> )	AT												_				
	CONSTITUENTS	Bicor- banate (HCO <sub>3</sub> )	AMERICAN RIVER	29	29	31	37	30	0.44	26 0.43	28	0.14	26 0.43	28	26	22	2 <u>lt</u>	25	2½ 0.39
	Minerol con	Carbon- ote (CO <sub>3</sub> )	AME	000	000	0.00	0.00	0000	000	000	0.0	0.00	0.00	0.0	0.00	000	0000	0.00	0.00
1	MIN	otos- sium (K)																	
	-	Sodium (No)		2.8	0.12	2.7	0.11	2.4 U.10	2.1	2.1	2.7	0.10	2.4	2.1	2.4	0.13	2.3	2.5	2°7 0°10
		Magne- sium (Mg)		0.14	1.8	2.1	2.2	2.8	2.1	2.1	0.13	1.6	1.3	0.10	2.2 0.18	0.09	1.7	1.8	1.7
		Colcium (Co)		7.2	7.0	7.4	7.6	7.h 0.37	6.6	6.6	6.8	6.5	6.7	6.8	5.2	5.8	4.8 0.24	0.24	5.0
		Hg 44		9.9	9.9	6.8	7.8	7.1	7.1	7.0	7.0	7.0	7.0	7.0	6.7	9.9	7.2	6.9	9
	Specific	conductonce (micromhos at 25°C)		63.0	0.99	67.3	70.8	65.3	58.1	59.5	61.0	59.0	57.5	57.5	56.4	52.3	50.2	52.1	51.8
		1 75																	
		Disso oxy ppm																	
_		in of																	
		Dischorge Temp in cfs in 9F	Average Mean Daily	1560	980	930	1250	4280 5750	18,400	1,380	2400	3610	1,870	1930	1,160	9310	6310	1,260	2790
		ond time sompled	1957	1/1-10	1/11-20	1/21-31	2/1-24	2/25-28 3/1-4	3/5-9	3/10-31	4/1-12	lı/13-26	12/27-30	5/1-13	5/14-19	5/20-31	6/1-11	6/12-17	6/18-30

o iron (Fe), oluminum (Al), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as ehown.

b Oetermined by addition of analyzed constituents

c Grovimetric determination.

d Annual median and range, respectively Colculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropoliton Water District (MWD), Las Angeles Dept. of Water & Power (LAOWP), City of Las Angeles Dept. of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated.

TABLE B-11

## ANALYSES OF SURFACE WATER

CENTHAL VALLEY REGION

		Anolyzed bye		Ciib	U.S. C.	cD: I	nsas	Uses	Sasa	Usus.		USGS	003	USIN	ניסטו	2000	Uoth	csca	USUS	<b>5.5</b> 00.0
		Coliform MPN/mi		-										·						
	Tink	bid - O																		
		N C.		H	0	Н	0	m	2	ם		0		m	7					
				2	19	22	22	23	8	18		20	21	56	26	25	34	26	27	28
-	D	Sad								02			18	16	17					
L	Total	solved solved solids in ppm		36	36	1,12	34	17	36	217		36	38	43	272	200	94	\$	62	59
		Other canstituents								Zn <u>0.03</u> a										
		Sife (SiO <sub>2</sub> )								21						-				
	lion	Baran (B)	~							0.05										
parts per million	per million	Flua- ride (F)	cont'd)							0.1	-				_	_				
s per	l 1	Ni- trate (NO <sub>3</sub> )	22d)							0.00										
par	equivalents	Chia- ride (CI)	WAKS (Sta.							0.03							_			
							<del></del>			0.10										
	nrs in	- Sul - te fate 3) (SO <sub>4</sub> )	AT FAIR	_ 100	_ ko	. lm	. [H	10				10	10	10	10	100	l-d	16	10	let .
	constituents	- Bicar- bonate (HCO <sub>3</sub> )	HIVER	0.38	0.38	26	0.41	0.39	0.36	0.36		0.39	24 0.39	28	30	30	31	30	% P	31
	MINBRUIC	Carban- ate (CO <sub>3</sub> )	ALERICAN	00	0 0	0 0	0000	000	08	0000		0 8	000	000	0.00	0 0	000	0.0	000	0 0
1	≥	Potas- sium (K)	AI							0.03			_	_			_			
		Sodium (Na)		2.4	0.09	2.1	2.0	2.5 0.11	2.3	0.10		0.00	2.1	2.3	2.6	2.1	2.6	2.2	2.4	2.4 0.10
		Magne- sium (Mg)		0.14	1.9	1.9	1.7	0.11	0.10	0.22		0.11	1.5	2°4	2.2	2.2	1.7	2.1	2.3	2.3
		Calcium (Ca)		5.0	4.4 0.22	5.6	5.2	6.4	0.24	2.8		0.26	0.30	6.4	6.8	6.7	111	7.0	7.1	7.3
	,	* H 4		6.8	7.0	7.0	6.7	6.8	2.9	6.5		6.9	6.7	6.9	6.8	6.7	9.9	6.9	6.8	6.7
	Specific	canductance (micromhas at 25°C)		50.9	1,9.7	1,8.7	47.3	58.8	49.2	49.3	1	52.4	55.7	60.2	68.7	64.2	87.h	65.3	67.1	68 <b>.</b> 4
		Dissolved (n axygen (n																		
		Temp in of																		
		Discharge Temp in cfs in aF	Average Mean Daily	2920	3190	3220	3270	3320	2550	2380	1	2530	24,70	1560	2330	2490	1660	1240	980	1380
		9 9	1957	7/1-18	7/19-31	8/1-9	8/10-20	8/21-31	9/1-10	9/11-20		9/21-30	10/1-3	10/4-23	10/24-31	11/1-23	11/24	11/25-30	12/1-17	12/18-31

o Iron (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by addition at analyzed constituents

d Annual median and range, respectively. Calculoted fram analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labaratories.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWO), Las Angeles Oept of Woter & Power. (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

Long Beach Oept of Pub Health (LADPH) or United States Bureou of Reclamation (USBR) or State Department of Water Resources (OWR), os indicated. f Field pH except when noted with #

B-90

CENTRAL VALLEY REGION

	N. I		ot.		roud long	
	Anolyzed by		######################################	Macol -	ULBIE	
	Hordness bid - Coliform os CoCO <sub>3</sub> lity MPN/ml Total N.C.					
, i.	- ty - ty - Ty Mdd					
ļ ·	OCO3 N.C. PPm					
:	Hordr os Co Total ppm					
Per	sod -		16	17	15	
Toto	solids in ppm		#	96	775	
	Other constituents					
	Silica (SiO <sub>2</sub> )					
Hion	Boron (B)					
per million	Fluo- ride (F)	, 22a)				
5 1 1	rote (NO <sub>3</sub> )	BELOW NIMBUS DAM(Sta	0.0	0.0	9.0	
equivolents	Chio- ride (CI)	IMBUS	3.6	2.5	2.8	
ñ	Sul - fote (SO <sub>4</sub> )	MOTER	6.7	6.2	3.4	
ituents	Bicar- bonote (HCO <sub>3</sub> )		27	19	58	
Mineral constituents	Corbon-B	AMERICAN RIVER	0.0	0.0	0,0	
Мілег	Potos- Co sium (K)		0.0	0.0	0	
	Sodium P(No)		2.5	1,8	9,1	
	Mogne- So Sium (Mg)		3.5	1,7	1.3	
	wm Wo					
	f Colcium (Co)		7.3 7.2	6.3 5.0	7.4 6.0	
jc	F			9	2	
	conductonce (micromhos of 25°C)		77.2	57	09	
	yen %Sol					
_	ge Tem	( a	67	58	79	
	Dischorge Temp in cfs in oF	Not Avail- able				
	Dote ond time sompled	1957	1-18 1335	6-17	9-5	

o Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 000/000 except as shown. b Determined by addition of analyzed constituents

c Grovimetric defermination,

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calt. Opti of Public Health, Division of Lobaratories.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Moler Branch (USGS), City of Las Angeles Dept of Pub Health (LADPH), Long Beach Dept. of Pub Health (LBOPH) or United States Bureau of Rectamation (USBR) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with #

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

	Anolyzed by 6			uses	USGS	uses	USGS	usas	usgs	usgs	USGS	usgs	USGS	usas	n <b>sc</b> s	
	Coliform d MPN/ml												Median USGS 62	Max. 7,000	Min. 2.3	
	Pid- -ty-	E 0 0		1.0	0,8	@	6	70	6	9	15	а	-	2	-	
	000	O E		0	0	2	2	0	0	<b>=</b>	7	-	0	#	#	
	Hordness os CoCO <sub>3</sub>	$\rightarrow$		24	22	56	28	22	19	53	. 25	19	24	30	30	
	- 40	ě		18	18	13	13	16	50	16	15	17	17	15	19	_
	Dis- Solved	in ppm						μl				<u></u>				
	40	Other constituents					6	200	# C0.00				ď			
	Silic	( <b>2</b> 01S)		81	콩	8	81	22 12	প্র	77	ধ্য	20 15	퀽	81	21	_
uo	Boro	<u>(8)</u>	~ <del> </del>	0.00	0.0	0.08	0.00	0.02	0.0	0.17	0.05	000	9.0	0.00	0.10	_
ports per million	Fluo- Bor	(F)	1 22					0.00				0000				
15	1	(NO <sub>3</sub> )	O (ST.					0.00				0.00				
ports p		(CI)	SACRAMENTO (STA	1.5	2.0	1.5	1.3	2.1	0.01	0.01	0.06	1.9	2.0	2.5	3.5	
ē	- Inc	(504)	AT		•			2.9				2.9		•		
constituents		(HCD <sub>3</sub> ) (	RIVER	30	33	26	32	27	24	23	22 0.36	22 0.36	32	32	32	
ŀ	rbon-B	(CO <sub>5</sub> )	AMERICAN	् 00•0	0000	000	000	0000	000	0.00	000	000	0000	0.00	00.0	
Mineral	-5010	(K)	<u></u>	0.0	0.03	0.02	0.02	0.02	0.02			0.02				$\exists$
	1 0	(N G)		2.5	0.12	1.8	2.0	2.1	2.2	2.0	2.0	0.08	2.2	2.6	3.2	
		(Mg)		1.5	2.1	0.22	0.17	1.5	0.10			1.1				
	₹ Ccu	(Co)		7.2	7.4	6.0	8.1	6.4	5.6			5.9			<u> </u>	
-		<b>Q</b> 4		7.1	7.1	7.3	7.3	7.3	7.1	7.1	7.1	7.1	7.1	7.1	7.1	-   5
-	Specific conductonce (micromhos	25° C)		62.4 7	67.6	52.7 7	56.7 7	57.2 7	48.6 7	7-64	47.8 7	48.3 7		65.6 7		- 3
-													58		67.7	_
	Dissolved	%Sat		12.0 102	12.8 114	104	96	10.6 103	66	95	96	91	- 68	96	96	
		Edd		12.0	12.{	12.1	10.5	10.6	10.2	9.3	9.2	8.5	8.6	10.2	10.7	
	Tem!			453 47	3 51	84 0004	3950 53	1900 58	2 58	2880 62	3180 64	99 0	1420 63	55	53	
	Discharge Temp			45.	713	7001	395	190(	2560	2880	318(	2400	1420	1020	1190	
		Deide	1957	1/11	2/21	3/18 0740	4/17 1205	5/9 1510	6/19 1240	7/12 0955	8/21 1345	9/23 1400	10/21	11/27 1645	12/20 1330	A lond (Es) starting (As)

o Iran (Fe), aluminum (AI), areenic (Ae), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed canatituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LADPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

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CENTRAL VALLEY REGION

	Analyzed by e		USGS	USGS	uses	usas	uses	usgs	uses	USGS	USGS	USGS	usas	USGS
	Caliform d MPN/ml													
	A to a		8	R	47	25	8	120	身	20	13	20	15	8
	Hardness as CaCO <sub>3</sub> Total N C ppm ppm		0	0	0	0	0	0	0	0	0	0	0	0
			η <sub>6</sub>	156	142	152	98	<b>†</b> 8	8	98	10h	87	162	112
	sod -		52	53	∄	62	26	6	59	63	8	69	59	99
Totol	solved solids in ppm						282				229			
	Other canstituents					0	Pou 0.45			POr 0, 35				
1	an Silica (SiO <sub>2</sub> )		8	퀿	0.08	9	<b>N</b>	00.00	00.00	0.05	0°14 475	70.0	0.07	0.01
million per million	Boran (B)		0.08	0.24	ö	90.0	4 0.15	ી	0	0		3	ાં	ol
parts per million valents per mill		冒					0.02				0.03			
rts pe	Ni- trate (NO <sub>3</sub> )	TA					1.6				4.5			
in be	Chla- ride (CI)	BEAR CREEK NEAR STEFINSON (STA. 111)	0.62	2.26	1,24	3.33	1.30	15	1.61	1.58	0.59	1.78	2,26	1.47
<u>-</u>	Sul - fate (504)	STE	•			•	2500.52				14			
constituents	Bicar S banate (HCO <sub>3</sub> ) ((	NEAR	3.21	210 3-44	201	3.30	2.74 0	158	139	166	162	177	302 4.95	280
ŭ	Carban Bi	CREEK	0.00	0.00	000	000	0000	000	0000	000	0.00	2000	0000	0.00
Mineral	Palas- Car sum (K) (C	BEAR	0.10	3.8	3.5	3.2	3.60	2.8	- 1-		4°C 9			
	P (2		149 th	3.70 0.	2.26	118	2.57	1.650	58	2.96	1.35	3.18	108	98
	Sadium (Na)								2	2.		<u></u>	7 +	<b> </b>
	Magne- sum (Mg)		6.9	16	1.09	1,14	9.2	7.1			1.22			
	Caterum (Ca)		1,15	28	35	1.85	1.20	1.10			17 0.85			
-	E €		7.9	8.1	8.3	8.5	8.3	7.9	8,1	8.3	8.1	8.1	8.5	
	Specific canductonce (micromhos at 25°C)		398	649	1641	834	1475	327	#	1482	365	51 <sup>th</sup>	772	929
	6		102	88	115	117	87	98	105	96	83	66	93	103
	Dissalved asygen ppm %S		2.2	9.2	1.3	7-0	8	7.8	80	7.6	7.8	9.2	10.2	1.3
			46 12°2	22	62 11	68 10.7	89	69	7	78	38	67	53 1	53 11.
	Discharge Temp in cfs in <sup>a</sup> F		No.t RATED											
	Date and time sampled	1957	1/9	2/20 0915	3/20	4/10	5/15	6/10	7/10	8/7	9/26	10/14	11/21	12/16

o Iron (Fe), aluminum (AI), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 200 except as ehown.

b Determined by addition of analyzed canetituents c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

TABLE 8-14

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

	Analyzed by e		USGS	USGS		USGS	USGS	usgs	USGS	USGS	USGS	USGS	USGS	USGS	
	Coliform MPN/mi											Median 17	Max. 120	Min. 0.62	
Tor.	- piq - th urpm urpm		0.8	9		00	2	#	0.9	0.9	-	8	↑°0	R	
	Hordness os CaCO <sub>3</sub> Totol N C ppm ppm		7	6		#	6	∞	23	27	23	0	12	11	
	Hordness os CaCO <sub>3</sub> Totol N C ppm ppm		62	95		24	∄	39	130	3140	139	93	91	ľή	
0	sod -		12	14		16	67 15	12	00	10	182 10	13	<b>1</b> 1	14	
Total	Solved solids in ppm						63				182				
	Diher constituents						Cu 0.01 Zn 0.02 Poh 0.20 F. 0.02	ď			PO <sub>th</sub> 0.00				
	(SiO <sub>2</sub> )			OI.		· 601	2]	<b>M</b>	al	ol	8	#1	81	01	
lion	Boron (B)	<b>8</b>	0.01	00.00		0.08	0.02	0.03	0.11	0000	000	0.0	0.02	00 00	
parts per million votents per mil	Fluo- ride (F)	(STA. Z					0.3 0.2				0.02 0.00				
ts per	Ni- trote (NO <sub>S</sub> )						0.00				1.1				2
ports p	Chlo- ride (Cl)	WHEATLAND	4°8	4.5		1.5	3.0	2.8	5.0	7.0	9-7	6.5	8.2	3.0	
č	Sul - fate (SO <sub>4</sub> )	NEAR	•	<u> </u>			7.3				26				
1	Bicor S bonote (HCO <sub>3</sub> ) ((	RIVER N	1.10	57		24	0.82	38	130	138	142 26 2.33 0.54	116	96	37	-   :
constituents		BEAR R	0000	0000	Semple broken in transit	0000	0000	0000	0000	0000	0 0 0 0	0000	0000	000	-
Minerol	00 corbon- 01e (CO3)	mı		-	t t		- 1		0		_	0	0		
	Polas- sium (K)		0.01	8 0.02	2 X	10.0	10	0.02	even	ωl0	10	70	ωlo	HIM	
	Sodium (No)		4.0	4.2	d • I	2.0	3.7	2.5	5.3	6.8	7.6	6.7	0.30	3.1	
	Mogne- sium (Mg)		200	5.7	Semi	1.9	3.9	3.4			15				
	Colcium (Ca)		16	13		6.4	11	0.50			31				
	Ha G		7.5	7.5	7.3		7.5	7.5	7.9	8.1	8.1	7.9	7.5	7.3	- 1 5
01,10	conductonce (micromhos at 25°C)	_	145	134		72.6 7.3	103	85.6	267	279	296	218	203	96.8	
S	-		103	109	104	105	1000	66	95	109	601	102	96	66	
	Dissolved oxygen ppm %Sc		3.9		11.6	6	8.8	9.	7.8	9.2	9.6		27	8	:
	d'a		37 13	51 12.2	11 15	57 10.	72 8	73 8.	79 7	77 9	72 9	61 10.1	55 10.2	50	-
	Dischorge Ter		65	133	869	584	190 7	160 7	3.5 7	1.6 7	28 7	31 6	84	550 5	
	Date ond time sampled	1957	1/10	2/13	3/12	1005	5/6	6/10	7/18 0855	8/12 0945	9/16 0945	10/22	11/12	12/20	

o iron (Fe), aluminum (AI), oreanic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Gr), reparted here as  $\frac{QQ}{\Delta GQ}$  except as shawn. b Determined by addition at analyzed canetitients

c Grovimetric determination.

d Annual median and range, respectively Colculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Divisian of Labardories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropalitan Water District (MWD), Los Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropalitan Water District (MWD), Los Angeles Dept. of Weter Resources (DWR), as indicated

f Field ph except when noted with \*

TABLE 8-34 WATER

(LADWM), Gify of Los Angeles Dapt of Pub Health (LADPH),

CENTRAL VALLEY REGION

	Anolyzed by e		uses	usos	USGS	uses	USGS	nsos	USGS	USGS	USGS	USGS	USGS	USGS	
	Tur-Coirform d														
	Did- bid- fily		<b>≐</b> 0	0		0	<b>⇒</b>	0.3	6.0	0.7	8			п	
	Hardness as CaCO <sub>S</sub> Tatoi N C		74 0	0 19	38 0	0 95	51 0	28 0	0 69	98 0	73 0	71 0	0 44	6 84	
-	sod -		33	56	50	24	9	23	31	56	&	23	23	17	-
	Solved solids in ppm						103 2				151				
	Other constituents						24 A1 0.01 Zn 0.10 Pot 3.05 P. 0.01				29 PO <sub>14</sub> 0.05 Fe 0.01				
6	Boron Silico (B) (SiO <sub>2</sub> )		0.15	0.02	0000	0.16		0.04	0.19	0.17	0-17	0.03	0.14	0000	
ports per million	1 -	A 85					0.0 0.0 0.0				0.00				
ports p	Ningle (NO <sub>3</sub> )	O (STA,									12 1.3				
	Chlo-	NEAR CHICO	12 0.34	7.0	3.0	6.0	0.15	6.0	8.5	0.34	0.34	9.0	0.34	14.0 0.11	
Ē	Sul - fore (SO <sub>4</sub> )						0.03				4.6				1
Mineral constituents	Bicar- bonate (HCD <sub>3</sub> )	CHICO CREEK	110	1.39	0.75	1.31	1.21	1.34	101	107	108	1.59	103	ц3 0.79	
neral con	Carbon- ofe (CO <sub>3</sub> )	BIG CHI	0000	000	0000	0000	0000	0000	0,00	0000	0000	0,00	0,00	0000	
ž	Potos. Srum (K)		2.3	0.02	0.01	0.02	0.02	0.02			1.6				
	Sodium (No)		3 0.74	9.8	0.19	8.2	8.2	8.2	19.0	14	0.65	9.6	13	4.6 0.20	
	Mogne- sium (Mg)		8.3	8.1	3.5	5.7	5.1	6.2			8.0				
	Colcium · (Co)		0.80	11	9.5	13	12	13			16				
	표 😘		7-7	7.8	7.3	7-9	7.6	7.9	7.9	8	7.9	7.7	7.7	7.3	
	Specific conductonce (micromhos at 25°C)		206	156	86.8	146	134	144	184	200	211	188	200	94.3	
	1 5		96	40 <b>1</b>	105	66	98	9.5 100	%	92	93	8	98	101	
	Drsso osy.		13.4	11.9	12.5	10.8	9.7	9.5	8.7.	8.7	8.9	10.0	11.1	11.7 101	
	Temp in of		36	64	34	53	19	65	ĸ	65	<del>1</del> 19	56	R	<del>2</del>	
	Dischorge in ofs		84	129	362	96	93	57	33	26	27	54	643	375	
	Date and time sampled	1957	1/11 0850	2/14	3/13	14/9	5/7	6/11 04/60	7/9	8/13	9/17 0830	10/23	11/12	12/19 1540	

o Iron (Fe), aluminum (Al), oreenic (Ae), capper (Cu), lead (Pb), mongonese (Mn), zinc (Zn), and chromium (Cr), reported here oe 100 except as shown.

b Determined by addition of analyzed constituents. c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analysse af duplicate manthly samples mode by Calif. Dept of Public Health, Division of Labaratories.

e Anneral analyses made by USGS, Quality af Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. af Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. af Water Resources (DWR), as indicated

f Field pH except when noted with e

TABLEB-14

CENTRAL VALLEY REGION

ANALYSES OF SURFACE WATER

	Anolyzed by e					U SGS	usgs	USGS	USGS	usgs	usgs	nses	uses		
	MPN/mi		-									Median 23	Мях. 2,400	Min. 0.06	
Tur	- bid - ty n ppm					9.0	5	1.2	0.0	9.0	-	-	39		
	CO3 N C					0	0	0	0	0	0	0	0		
L _						25	97	32	45	94	50	39	42		
2	sod –					18	17	16	17	22	17.	16	18		
Total	solved solved in ppm						54				96				
	Other constituents							10°0 hou			Pot 0.05				
	(SiO <sub>2</sub> )						12				쿼				
	Boran (B)	<u> </u>				0.00	00.00	0.09	0.08	00.00	0.0000.00	0.01	00.00		
million per million	Fluo- ride (F)	. 178)									0.00				
1511	Ni- trate (NO <sub>3</sub> )	(STA					0.5 0.2				00.2				
ports p	Chio- ride (CI)	NEAR BURNEY (STA.				0.00	0.0	0.00	1.0	1.5	0.03	0.02	0.00		
Ē	Sul - fate (SO <sub>4</sub> )				-		1.9				1.9				
constituents	Bicar S bonote f (HCO <sub>3</sub> ) (9	Y CREEK				38	37 0.61	44	572	01.10	1.16 0	58	55		
1 1	Carbon-E	BURNEY				0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00		
Minerol	Solos- C Sium (K)					0.01	0.02	0.00	10	10	1.5	10			
	ш.					200	0.11 0	3.0	4.2 0.18	6.0	4.8 0.21	3.4	4.3 0.19		
	Sodium (Na)	-				10	L L		7 0	90	- 1	~ °	0		
	Mogne- sium (Mg)					2.2	2.7	$\frac{2.1}{0.17}$			3.6				
	Colcium (Co)					6.4	0.30	9.4			14 0-70				
	ı					7.3	7.3	7.3	7.5	7.3	7.3	7.3	7.1		
2	tonce mhos 5° C)					58.5	62.5	73.1	98.87			-	91.6		
Speci	conductonce (micromhos at 25ªC)					١٠	9		-6	105	112	16	o\		
						102	82	98	84	88	83	88	82		
	Dissolved oxygen ppm %So		pu	pu	nd	10.9	9.0	9.3	9.5	9.1	8.8	10.0	9.8	nd	
	Temp in aF		Snewbeund	Snewbeund	Snowbound	55	53	54	55	26	55	50	941	Snowbound	
	Discharge Temp		Sne	Sne	Snc	98t.	30 te.	est. 26	est 15	16 est.	est 20	est 55	est 110	Snd	
	Date and time sompled	1957	Jan.	Peb.	Mar.	1000	5/8 0940	6/12 071 <b>5</b>	7/10 0855	8/14 0920	9/18 0815	10/24 1140	11/13	Dec.	

as accept as b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annul median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborataries.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated Field pH except when nated with e

TABLE B-16 MATER

City of Los Angeles Dapt of Pub Health (LADPH),

CENTRAL VALLEY REGION

		Analyzed by e			nses	USGS	USGS	USGS	uses	uses	DSGS	nscs	USGS	USGS	uses	USGS
		s bid - Coleform														
	Tor.	- bid - ty mpgm			0.0	~	9	0	-	0.8	0.0	-	H	2	2	н
		SO Z	8		0	0	0	0	0	0	0	8	0	0	0	12
		Hord as C	Edd		50	64	8	34	35	3	143	53	3	51	<b>8</b> €	20
	D.	sod –			7.	15	ካፒ	14	15	15	20	21	20	14	17	15
	Tatol	solved solids in ppm	م						58				#8			
		Other constituents						A) 0 oh 0, 0 o	Po <sub>1</sub> 0.05 Fe 0.03				Po, 0.05			
		(S102)					101	ml	81	aut.			56		101	
c	Illion	Baron (B)			0000	0000	0.06	0.08	0.1 0.05	0.02	0.06	0000	00.0 0.00 26	0.0	0.05	00.00
ports per million	per million	Fluo- ride		70					0.0				0.00			
s per		trote	$\rightarrow$						0.0				0.00			
	equivalents	Chla- ride	1	R CHICO (STA.	0.03	1.0	0.03	0.0	1.9	0.08	0.02	1.4	0.03	0.01	1.5	1.5
	<u>-</u>	Sul - fate	100	NEAR					0.00		•		2.9			
- 1		Bicor-S bonate	- 1	CREEK	2011	1.11	37	0.74 0.74	0.72	uв 0.79	1.02	62	1.10	1.10	11.11	ще 0.75
	constituents	- Bio	2	BUTTE	18	i	18	8	18	18	18	18	<u> -</u>   2	18	18	18
	Mineral	S- Carban-	3				1	0.6			00	00		00	0	0
		Potos-	3				10		0.01	0.02			1.5	1010		mis
		Sodium (No)			3.3	4.2	2.3	2.6	0.12	2.9	4.9	6.4	5.5	3.6	4.4	3.8
		Mogne- sium	(SM)		4.3 0.35	9.9	0.22	3.0	0.24	2.9			9.9			-
		Colcium (Co)			13	8.8	7.4	8.6	8.3	0.50			7.6			
		I	4		7.5	7.9	7.3	7.5	7.3	7.5	7.9	7.9	8	7.5	7.5	7.2
	Specific	conductance (micromhos at 25°C)			114	109	8.49	81.7	75.9	80.9	98.3	109	107	109	111	97.5
			% 20¢		99	901	101	66	8	66	66	88	98	93	8	98
		Disso	mdd		13.8	12.0	11.7	10.7	10.0	10.0	80	9•1	9	10.3	11.3	11.11
		Ten n of			35	R	<b>9</b>	54	58	59	ĸ	49	99	52	<b>9</b>	<u>8</u>
		Dischorge in cfs			131	220	049	345	429	315	20′	138	135	161	166	581
		Date and time sampled		1957	1/10	2/14	3/12	4/8	5/7 0940	6/11 0845	7/8	8/12	9/16	10/23	11/12	12/20

o Iron (Fe), oluminum (A1), oreenic (Aa), capper (Cu), tead (Pb), mongonese (Mn), zinc (Zn), and chromium (Cr), reported here as an except as chawn. b Determined by addition of analyzed constituents.

d Annual median and range, respectively. Calculated fram analyses at duplicate manthly camples made by Calif. Dept of Public Health, Division of Laboratories.

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f Field pH except when noted with e-

TABLE B-14

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Andiyzed by e			uses	USGS	USGS	USGS	USGS	USGS	USGS	USGS	asces	nses	uses	
		NPN/mi											Median 17	Max. 230	Min. 0.62	
	Tur	- bid - tty In ppm			-	18	<b>©</b>	10	16	<b>©</b>	7	9	2	8.0	65	
		CD3 N C	_		53	10	7	0	0	0	~	0	0	15	m	
		Hardness os CaCD <sub>3</sub> Totoi N C ppm ppm			301	163	188	146	137	142	149	143	235	217	120	
	ď	sod -			39	2	29	9 23	21	20	21	6 23	39	36	22	
	Totol	solved salids in ppm						209				196				
		Other constituents						Zn 0.02 & 0.01				PO <sub>11</sub> 0.05 a		Tot. Alk. 246		
		Sifico (SiD2)						피				5:1				
00	million	Boron (B)			5.0	1.7	1.6	1.2	1.2	1:1	1:1	1.1	3.1	2.8	1.0	
ocillia.	e l	Flua- ride (F)	80)					0.02 0.01				0.00	<del>.</del>			
oorts oer	lents	rrate (NO3)	(ST					1.1				0.03				
	equivalents	Chlo- ride (CI)	CREEK NEAR CAPAY (STA		14.09	1.18	1.18	20	15	0.62	14 0.39	18 0.51	104	2.43	0.87	
	ē	Sul - fote (S D <sub>4</sub> )	X					.31				11 0.23				
	constituents	Bicor S bonate (HCO <sub>3</sub> ) (	E CHE		1.97	186	3.62	3.02 0.31	176	174	178	3.05 0	276	232	2.34	
		Carban B	CACHE		0000	00.00	0000	00.0	000	0000	0000	000	0000	0.23	000	
	Mineral	Sium (K)			3.1	1.6	2.4	2.1	2.5		10	2.6		19		
		Sodium (No)			3.%	<b>≅</b>	23,8	21 0.91	0-74 0	16	18	0.87	9,00	2.44	25	
		Magne- So sum (Mg)			3.52	23	2.26 1.	20	16	0	0	1.56 0	<u>       </u>	2	<u>   -i                                  </u>	
	1	Wan (A			1	1	2 2 2 2					-				
-		Calcium (Ca)			2 2 2	H	i.i	3 26	<u> </u>		- 2	<u> </u>	- 2	e4	0	
		D B C C C C C C C C C C C C C C C C C C			Φ. 0.	8.1	80	φ.	ar ⊗	8.1	8.2	7-7	8.2	8.1	80	
	Specific	conductance (micromhos			968	1459	נוק	367	328	321	332	357	766	699	339	
		1 45			115	66	103	101	105	96	98	66	ま	100	96	
		Dissolved oxygen ppm 9/050		peldes	11.5	10.5	10.2	9.5	4.8	8.2	8.3	8.2	9.5	11.0	11.6	
		Temp in OF			3	55	19	99	80	75	76	78	23	53	541	
		Discharge in cfs		Not	148	1426	340	659	166	ή05	300	209	115	98	959	
		Date and time sampled	1957	-lan-	2/18	3/11	4/15 1240	5/10	6/21 1440	7/16	8/19	9/10	10/28 0945	11/18	12/23 1430	

a Iron (Fe), aluminum (AI), orsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as add except as shawn. b Determined by addition at analyzed canstituents. c Grovimetric determination.

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\* Field pH except when noted with a

		Analyzed by 6		USGS	USGS	USGS	USGS	uses	USGS	DSGS	USGS	nses	uses	uses	uses	
		MPN/ml											Median 13	Max. 7,000	Min. 0.23	
	1 1 1	- bid - fi n ppm		2	~	η6		7	7	12	<b>=</b>	<i>a</i>	3	01	भूर	
		N C		0	0	^	0	0	0	0	<b>4</b>	0	-	<b>©</b>	0	
				143	134	93	124	120	1117	1117	132	120	200	114	26	
	0	sod -		17	18	20	17	16	17	17	16	18	17	17	23	
	Total	Solved solved in ppm						151				160				
		Other constituents						Zn 0.02 F. 0.01				A1 0.08 Zn 0.01	d			
		(S:02)			<del>- 21 -</del>	-12	ला	22	<u> </u>	N-		1° t	- e-7	<b>∞</b> 1	<b>©</b> Т	
	illion	Boron (B)	(Z)	1:1	0.80	0.46	0.92	0.95	0.92	0.87	0.88	0.98	9.0	0.68	0.08	
	million per million	Fluo- ride (F)	(STA, 1					0.01				0.00		·		
	ports per million equivalents per mil	ni- frote (NO <sub>S</sub> )	LAKE (S'					0.02 0.01				5° th				
REGION	equiv	Chio- ride (CI)	NEAR LOWER L	13	12 0.34	7.0	8.5	6.0	5.0	6.2	6.0	6.8	6.0	7.0	4.5	
VALLEY	č	Sul - fote (SO <sub>4</sub> )	NEAR					9.6		-		8.6				
CENTRAL V.	constituents	Bicar- bonate (HCD <sub>3</sub> )	CREEK	181	163	105	155	2.50	151	153	156	160	121	129	56	
CEN	Mineral con	Carbon- ate (CO <sub>3</sub> )	CACHE	0000	00.00	0000	0000	00.00	00.00	0000	0000	0000	0000	0000	0.00	
	Min	Patas- sium (K)		2° h	2.2	2.1	2.5	1.2	2.1			2.5				
		Sodium (No)		19.0	140	0.48	12	0.18 84	11 0。4	11 0.48	12 0.52	12	9.5	TT 900	7.6	
		Mogne- sium (Mg)		1.46	1,43	110.0	17	519	130	10	- 10	717				
		Colcium (Ca)		1.40	1.25	0.95	1.10 1	26	16			25 1				
				7.5 I.	7.9	7.5	<del></del>	7.7	8.1	8.1	8.1	8.1	7.5	7.9	7.2	
		once pH		7	7	7	7.	7	80	<b>6</b> 0	ω	ထိ			7	-
	Specif	canductance (micramhas at 25°C)		325	311	229	282	269	264	266	279	2 90	226	255	340	
				82	105	87	%	92	95	95	16	₩8	&	66	87	
		Dissolved axygen ppm %S		10.6	11.8	10.0	9.7	9.1	8.2	8	7.8	7.0	7.9	11.1	10.4	
		Temp n of		3	15	64	59	19	7.7	77	K.	78	62	51		
		Discharge Temp		1,2	1.0	1.4	59	455	386	384	353	235	1.6	1.1	1.5 46	
		Dote and time sampled	1957	1/15	2/19 1020	3/14	91/4	5/14	6/20	7/15	8/20	9/11	1630	11/19	12/18	

a Iron (Fe), aluminum (AI), arsenic (Ae), capper (Gu), lead (Pb), mangansse (Mn), zinc (Zn), and chromium (Gr), reported here as \$\frac{0.0}{0.00}\$ except as shawn.

b Determined by addition of analyzed constituents

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f Field pH except when noted with a

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Anolyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
		Caliform MPN/ml											Median 6.2	Max. 620	Min. 0.23	
	- I	bid - Ity In ppm		50	0	28	2	0.9	0.3	8.0	<b>⊅°0</b>	7	7	9•0	150	
		CO3 N C		6	<b>5</b>	0	0	0	0	0	ω	#	0	-	0	
		Hordr os Co Total ppm		123	208	87	1 42	145	162	172	189	188	159	166	76	
	Q	e od -		28	8	21	22	23	23	<b>5</b> μ	27	27	56	27	50	
	Total	solved solids in ppm						902				285				
		Other constituents	22				74 /	Zn 0.02 - 0.01	Tot. Alk. 206	Tot. Alk. 212	Tot. Alk. 221	Pb 0.01 Tot. Alk. 225		Tot. Alk. 201		
		Silico (SiO <sub>2</sub> )	(STA.	<u>.</u>	0	5	9	2 15	_	او	80	0 22		6	2	_
uo uo	per million	Boron (B)	1	2.5	27	0.63	1.6	1.7	2.3	2.6	2.8	00	3.0	2.9	0.53	
million	per n	Fluo- ride (F)	LAKE					0.01				0.00 0.00				
Dorts per	ents	N:- trote (NO <sub>3</sub> )	LOWER					0.0				0.00				5
od	equivolents	Chlo- ride (Cl)	NEAR	31	1.69	8.5	19	20	26 0.73	26	1.21	1.33	36	1.04	9.0	
	<u>e</u>	Sul - fote (SO <sub>4</sub> )	FOFK,			•		12 0.25				9.6				
	constituents	Bicar S bonote (HCO <sub>3</sub> ) ((	NORTH	146	240 3.93	112	181	162	311	182	3.29	3.26	3.25	3,00	1.61	
		Corbon- ote (CO <sub>3</sub> )	CREEK	0000	0000	0.00	0000	0.37	8	15	10	13	00.00	0.30	00.00	
	Minerol	Potos- Co sium (K)	CACHE	1.0	1.5	0.02	1.0	0.00	1.4			2.1				
		Sodium P(No)	01	0.96 0	1.83	0.48	19	20 0-87 0	200	25	32	<b>≈</b>	1.09	29	0.38	$\dashv$
				1,41 0.	31 2.56 1.	0.89	1.59 0.	19	1.74 1.	<u>   -</u>		2.21	i	H	w 10	_
		Mogne- sium (Mg)		-				- 1	1							
		Coleium (Co)		21	2/8	0.85	1.25	1.38	28			31				
		Ŧ 64		7.9	8.3	8.1	8.1	n • 8	8.3	8.3	8.3	n 8	8.1	8	7.9	
	Specific	conductance (micramhos of 25°C)		332	563	218	349.	351	402	1437	1485	£04	914	1436	181	
				%	123	88	101	104	66	139	115	136	93	109	₹ 	
		Dissolved oxygen ppm 9/6S0		11.9	13.4	10.6	10.7 101	9.8	8.7	11.0	9.8	ניוו	11°6	12.0	10.8	
		Temp In OF		£3	53	514	56	99	72	83	26	&	59	53	641	
		Dischorge in cfs		274	27	510	19	90	28	∞	~	1.0	117	70	1600	
		Date ond time sompled	1957	1/15	2/19	3/13	1000	5/13	6/21 0840	7/15	8/20	9/11	10/16	11/19	12/18	

o Iron (Fe), oluminum (AI), areens (Ae), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as all except as shown. b Determined by addition of analyzed constituents.

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City of Las Angeles Dapt of Pub Health (LADPH).

CENTRAL VALLEY REGION

Γ	_	0					
		Anolyzed bye		USBR	USBR	USBR	1.3BR
		s bid - Coliform					
-		Did - Co					
-	1-	N CO					
		Hordr os Co Totol ppm					
	Day	cent sod -		2.0	21	56	28
	Totol	solved solids in ppm		96	100	128	120
		Other constituents					
		Silico (SiO <sub>2</sub> )					
-	Ilion	Boron (B)	<u></u>				
millio	per million	Fluo- ride (F)	, 1104)				
ports per million		rrote (NO <sub>3</sub> )	JGH (Sta				
00	equivolents	Chlo- ride (CI)	CACHE SLOUGH BEIDW LINUSEY SLOUGH (Sta	5.7	6.7	12	11
	c.	Sul - fote (SO <sub>4</sub> )	LINES	,			
		Bicor-S bonote (HCO <sub>3</sub> ) ((	BEIOW				
	constituents		SLOUGH				
	Minerol	- Corbon- ote (CO <sub>3</sub> )	CACHE				
	2	Potos- sium (K)					
		Sodium (No)		0.5	6.9	77	10
		Mogne- sium (Mg)					
		Colcium (Co)					
-	لب	E <sup>€4</sup>					
	Specific	conductonce (micromhos at 25°C)		110	143	180	156
		gen /gen					
-							
-		ge Tem		52	79	472	62
		Dischorge Temp in cts in 0F	Tidel				
		Dote ond time sompled	1957	2-27	5-1 1155	8-1 1255	10-28

o Iron (Fe), oluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 00 except as shown. b Defermined by addition of analyzed constituents

c Grovimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropalitan Water District (MWD), Las Angeles Dept of Water & Dower (LADWP), City of Las Angeles Dept of Pub Health (LADPH),

Lang Beach Dept of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when noted with #

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL VALLEY REGION

	Analyzed by e		nses	uses	uses	uses	usgs	USGS	uses	USGB	USGS	USGS	USGS		
	Coliform d MPN/mi					<u> </u>				-	<del></del>	Median 23	Mex. 7000	Min. 0.5	
	bid - yth		7	<b>®</b>	70	-	-	7	#	9	0.5	~	2	7	$\dashv$
	CD3 N C		<b>±</b>	7	2	2	7	7	9	~	4	~	10	<b>1</b> 7.	
	Hordness as CaCD <sub>3</sub> Tatal N C		107	92	91	88	81	92	90	102	116	130	128	121	
	Cent Cent Cent Cent		13	ήŢ	14	13	14	13	13	14	13	12	16	15	
Tatel	Salved solids in pom						113				158				
	Other constituents					000	Fe0.02 Cu 0.04			,	A10.04 Pou0.05				
	Silico (Si02)				O.I.	101	16		-	-01	23	voi -	- 01	O <sub>1</sub>	
illion	Baron (B)		90.0	0.00	0.12	0.06	0.00	0.07	0.14	0.00	0.00	0.00	0.00	0.00	
million per million	Fluo- ride (F)	. 16A					0.0				0.0				
e		D (STA					0.01				0.5				
parts p	Chia- ride (CI)	JENNY LEFT	7.4	7.5	4.5	4.5	3.5	2.5	3.4	4.5	0.20	8.0	12 0.34	12 0.34	
Ē	Sul - fote (SD4)	AT J				-	9.6	•			11				
constituents	Bicar- banate (HCO <sub>3</sub> )	RIVER	126	1.70	1.72	101	1.61	92	102	121	136	150	134	2.15	
Mineral can	Carbon- ote (CO <sub>3</sub> )	CALAVERAS	0000	00.00	0.00	00.00	0.00	0.00	0.00	0.00	0.00	0.00	0000	0.00	
×	Palos- Sium (K)	CAI	1.4	1.2	1.5	1.3	1.3	1.2			2.3				
	Sodium (No)		7.7	7.2	7.1	6.1	5.9	5.2	6.1	7.3	8.1	8.0	11 0.48	24.0	
	Mogne- stum (Mg)		8.3 7.7	7.9 7.2	11 7.1	8.5 6.1	6.9	6.3		- 10	0.86			•	
	Colcium (Co)		29	24 1.20	18	21	21	1.00			1.45				
	1 8 w		7.7	7.7	7.5	0. 1.	7.3	7-9	7.9	7.9	7.3	7.3	7.9	7.7	
	conductonce (micramhas		240 7	209 7	203	191	184	170	191	209	254	288	292	283	
			102	102	96	104	78	109	96	85	73	1 76	66	101	
	Dissolved oxygen ppm 9/650		12.0102	11.4102	10.0	10.0104	7-3	10.0	ω. •	7.5	9	7.4	11.1	12.1	
			14	15	52	<b>1</b> 19	99	19	71	72	94	63	51	147	
	Dischorge Temp in cfs in 9F		144	97	31	14	12	202	180	128	Nc Flor	1.9	16	21	
	Dote and time sampled	1957	1/14	2/13 1105	3/11	4/15	5/7	6/17	7/17 0830	8/19 1045	9/10	10/22	11/27	12/11	

d from (Fe), aluminum (A1), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

f Field pH except when noted with a

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Colif. Dept of Public Health, Division of Laborates.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Caneultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Pawer (LADWP), City of Los Angeles Dept. of Pub. Health (LADPH),

Long Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

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CENTRAL VALLEY BEGION

		Analyzed by e		USGS	uses	USOS	0505	nsos	USGS	USGS	USGS	USGS	USGS	USGS	USGS
		MPN/mi											Medien 0.62	Мах.	Min. 0.06
Ì	3	wdd u		2	2	10	7	-	10	2	7	2	01	∞	10
		Hordness os CoCOs Total N C ppm		0	0	0	0	0	0	0	0	0	0	0	~
		LL		118	121	113	115	011	111	114	120	911	124	127	129
	ě	Sod -		15	16	15	15	142 16	16	17	17	17	15	16	17
	Totol	Salved solids in ppm										157			
		Other canstituents					1	A1 0.11 Cu 0.02 POu 0.05 Fe 0.02 Zn 0.03 C				POU 0.30 F 0.01			
		Silica (SiO <sub>2</sub> )		N	M	ol	#1	9 8		- 13	7	=		- 61	M
	illion	Beron (B)	04	0.87	0.83	8	₩8•0	0.74	0.78	0.77	0.87	0.91	0.83	0.89	0.85
	ports per millian valents per millian	Flua- ride (F)	(STA.					0.00 0.01				0.0			
	ē	NI- trate (NO <sub>5</sub> )	OAKS					00.0				1.6			
CENTRAL VALLEY REGION	ports p	Chlo- ride (Cl)	CLEAR LAKE NEAR CLEARLAKE 04	5.6	6.0	5.5	6.0	5.5	5.0	6.0	6.3	6.6	6.5	7.5	0.18
LLEY	Ē	Sul - fote (SD <sub>4</sub> )	5	· ·	<del></del>	•		8.6				9.6			
TAL VA	constituents	Bicar-Si banote (HCO <sub>3</sub> ) (S	E NEAR	151	152	140 2.29	141	2.34	2.34	146	151	15th 2.52 0	160	161	15 <sup>th</sup>
CENT		Carbon - Bi	AR LAK	0.00	0000	0.00	0000	0000	0.00	0 000 2	0000	0000	0000	0 0000	0 0 0
	Minerol	Patas- Car sium (K)	- B	1.9	2.0	1.9	1.9	1.8	8 5	10		2.3			
		e d		~ °	- 16 - 18	7,2	100	917	9.6 1	118	型段	다. 역::	의	<u> </u>	22/22
		Sodium (Na)		0.10	0.48	9.7	0.45	9.6	1	0.48	0.48	0.48	0.110	0.48	0.52
		Magne- stum (Mg)		1.21	1.27	1016	1.25	12	1111			1,12			
		Calcium (Ca)		23	23	22	21	24	22			1.20			
		Ŧ •		7.9	8.1	7-9	8.1	8.1	8.1	8.1	# ° 8	7*8	7-7	7.7	7.9
		canductance (micrambas at 25°C)		262	279 8	250	2ψ2 8	247 8	251 8	256 8	268	280	772	281 7	279 7
	U	1 6		20		95		8	88	93	36	107	74	<del>1</del> 8	76
		Dissolved axygen ppm %Si		.9 1	8		10.7 103	±1.6	8 0 8	7.8	8.1	9.0 10	7.3 7	8.9	
				12.9 107	50 13.8 122	52 10.5	57 10.	63 9,	69 8.		75 8.		62 7.	55 8,	50 10.7
		ge Temp s in 0F		#	<u> </u>	2	2	9	9	7	7	7	9	<u>r</u>	17
		Discharge in cfs													
		Dote and time sampled	1957	1/15	2/19	3/13	4/16	5/13	6/21	7/15	8/20	9/11	10/16 0920	11/19	12/18 1410

o Iron (Fe), aluminum (AI), greenic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown.

b Defermined by addition of analyzed constituents

d Annual median and range, respectively. Calculated from analysee of duplicate manthly samples made by Calif. Dept of Public Health, Division of Laborateries.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (LADPH), a indicated

f Field pH except when noted with a

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

				_											
		Analyzed by 6		USGS	USGS	USGS	0808	USGS	uses	USOS	asosa	USGS	USGS	uses	usas
		Coliform MPN/mi				_							Median 2.3	Max. 620	Min. 0.045
		- bid - ty - ppd u		35	2	24	7	<b>6</b> 0	15	17	10	6	20	20	01
		SCD3		0	0	0	0	0	0	0	-	0	2	0	_
				112	115	103	108	108	108	114	124	119	125	126	115
	2	sod -	,	15	15	15	15	139 16	16	16	16	163 16	17	16	17
	Total	Salved solids in ppm						139				163			
		Other constituents						Z& 0.03 P. 0.03			6	201			
	1	(S) (S)		ह्या	리	27	23	임	20	Ħ	<u></u>	리	27	<u></u>	<u></u>
	million	- Baran (B)	<u> </u>	0.81	0.71	0.75	0.67	1 0.81	0.82	0.77	0.83	1 0.73	0.82	0.88	0.78
1	ber		A 41)					0.01				0.01			
	volents per mil	Ni- trote (ND <sub>S</sub> )	T (ST					0.01				2.7			
	equivolents	Chia- ride (CI)	CLEAR LAKE AT LAKEPORT (STA	5.5	5.0	5.0	5.0	5.0	5.0	5.8	6.0	7.3	0.20	0.20	0.18
121	<u>-</u>	Sul - fote (SO <sub>4</sub> )	E AT				•	2.7				0.23			
CENTRAL VALLET REGION	constituents	Bicar - bonate (HCO <sub>S</sub> )	AR LAK	141	146 2.39	133	135	1 <sup>1</sup> 40	140 2,29	2.38 1.53	150	2.540	150 2.46	155 2.54	139
CENTR		Carbon-	10	0000	000	0.00	000	000	000	0000	000	0000	0000	0000	0000
	Mineral	atas- sium (K)		0.09	1.8	0.09	0.0	0.04	2.3	-		2.5	-		
		Sodium (NO)		9.6	9.8	9.0	9.0	9.41	9.8	0.1	0°43	1 P	12 0.52	11 0.48	0.48
		Magne- Sc sum (Mg)		1,19	1.20	17 T	1,16	13	13 07		10	1,17			
		W S I				<u>_</u>		-	i.					_	
		Colerum (Co)		1.05	1.10	1.05	1.00	1.10	1.10			1.20			
-		₽ <b>₽</b>		7.7	8.2	7.7	8.1	7.7	7.5	7.9	7.9	8.2	7.9	7.9	7.7
	Specific	conducting (micrombos at 25°C)		249	254	240	238	241	247	256	268	281	271	278	252
		Sof		95	126	80	%	&	62	82		66	82	<b>80</b>	85
		Dissalve axygen ppm %		11.5	13.9 126	6-6	10.0	8.1	5.7	6.9		8.2	8.2	9.5	9.8
		Temp in oF		芫	52	52	57	59	89	8	73	78	.8	λ. 5.	6 <del>1</del>
		Discharge in cfs													
		Date and time sampled	1957	1/15	2/19 1245	3/14	4/16	5/14 0715	0630	7/15	8/20	9/11	10/16	11/19	12/18 1305

a Iran (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown.

b Determined by addition of analyzed constituents. c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Labarderies.

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f Field pH except when noted with a

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

wer (L.ADWF), City of Los Angeles Dapt of Pub Health (L.ADPH),

	Anolyzed by e			nses	uses	nses	SSSO	nsgs	nses	uses	USGS	USGS	usgs	DSGS	USGS	
	NPN/mi															
1	- pid - hidau			200	20	27	85	20	20	3	15	10	झ	35	250	
	Hardness as CoCO <sub>3</sub>	O E G		~	58	1 36	0	0	0	0	0	0	0	641	<u>8</u>	
		Total		128	356	314	112	96	130	122	128	118	133	320	242	
0	sod -			75	52	52	3	917	£	33	33	#	3	7	58	
Total	Solved solids	т <b>о</b>						212				238				
	Other constituents					Tot. alk. 339		A1 0.12 Cu 0.01 Pou 0.20 a Fe 0.03 Zn 0.02			4	Fe 0.03 A1 0.13		Tot. Alk. 330		
	Silico	(2015)						15				21				
lian	Baran	Ē		0.15	0.30	0.27	0.23	0.17	0.20	0.22	0.14	0.21	0.20	0.27	0-35	
million per million	Fino-		67					0.2				0.0				
10	N- 1 rote	$\rightarrow$	(STA					0.01				9 0 0				
parts p	Chia- N	$\dashv$	COLUS	38	10 <sup>4</sup>	98	20 0.56	16 0	21 0.59	14 0.39	15	0.48 0.	28	2.59	102 2.88	
c	Sul -	3	NEAF					38	!	1		33				
constituents	Brear Su	$\rightarrow$	TROUGH NEAR	2.43	363	311	146	2,340	3.15	180	173	175 2.87 0.	180	316	237 3.88	
	Carban - B		COLUSA	000	000	1400	000	00.00	000	00.00	0.00	000	000	0.23	00.00	
Mineral	Potos- Co	( <del>X</del>	01	0.14	1.6	1.6	2.4	1.8	1.7		1-	2.1	1-	15		_
	Sodium			3.18	180	155	35	39	49	36	38	38	2.3	131	153	
	Magne- S			1.31	1,38	3.65	1.14	0,97	16.1			1,16	164	121		
	Colema	(2)		1.25	252	53	22	33	98			20 20				
	I	6.4		7-7	8.2	8 3	7.7	7.7	7.9	7-7	.7	7.	7.5	8.1	8.1	
Specific	conductance (micromhas			589	1370	1200 8	375	350 ()	1911	377	371	3%	209	1100	1160 8	
		%Sat		72	112	110	16	8	92	&	83	26	69	89	80	
	Dissolved	Edd		8.7	11.7	11.4	9.1	#•8	6.5	8.9	7.2	9.9	6.7	10.2	10.0	
	Temp in of			£	80 57	22	8	99	22	9,6	73	73	63		8	
	Discharge in cfs			1040	&	135	535	1580	409	765	99373	146073	1490 63	108 49	425	
	Date and time sampled		1957	1/1 <sup>4</sup> 1235	2/18 1230	3/13	4/15 1115	5/13	6/21	7/15	8/19	9/10	10/16 11.30	11/18 0411	12/18	

a Iran (Fe), aluminum.(A1), areenic (Ae), capper (Cu), lead (Pb), manganese (Mg), zinc (Zn), and chromium (Gr), reparted here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by addition of analyzed constituents. c Gravimetric determination.

f Field pH except when noted with e-

d Annual median and range, respectively Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Laborotories.

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ANALYSES OF SURFACE WATER CENTHAL VALLEY REGION TABLE B-14

	Analyzed by e		USBR	USBR	извк	USBR	изви	USBR	USBR	USBR	USBR	USBR	ns Bit	
	bid - Caliform ity MPN/ml													
- In	bid - C													
-	Hordness os CoCO <sub>3</sub> r													
	1													
P. P. P.	sod -		72	877	50	39	77	77	64	75	78	97	64	
Total	salved salids in ppm		520	576	624	717	200	150	250	282	270	290	372	
	Other constituents													
	Sitica (SiO <sub>2</sub> )													
Ilion	Baran (B)	109a)		0,19			0.08			0.10			1.05	
valents per million	Flua- ride (F)	FT(Sta												
	Ni- trate (NO <sub>3</sub> )	PUMP LIFT(Sta	디	17	0.6	1.2	1.2	0.0	0.0	9.0	0.0	0.0	9,0	
equivalents	Chla- ride (CI)	FIHST P	135	132	163	777	39	24	62	53	09	69	103	
<u>_</u>	Sul - fote (SO <sub>4</sub> )	CANAL AT	160	122	148	37	30	24	33	36	67	55	75	
constituents	Bicar- banate (HCO <sub>3</sub> )	OSTA CAN	- 76	011	134	77	74	72	77	82	98	700	र्ग	
	Carbon—B ate (CO <sub>3</sub> ) (r	CONTRA COS	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0	
Mineral	sium (C)	Ŝ										'		
	Q.		0	0.0	1.2	2 0.0	0.0	2.0	2.7	2,3	7 2.0	2,3	2	_
	e- Sadium (No)		76	- 32	=	- 29	26	7	0†7	288	747	- 51	3	
	Magne- sium (Mg)		27	27	26	7	01	4.7	12	12	FT.	16	15	
	Colcium (Co)		775	77	23	20	16	19	16	22	21	23	30	
	H 4		8,2	7.9	7.8	7-7	7.1	7.0	7.4	7.3	7.4	7.2	7.7	
Specific	canductance (micromhas at 25°C)		166	806	1021	354	236	243	366	501	421	502	603	
	Dissalved axygen ppm %Sat													
	Temp in oF		67	25	62	79	69	78	92	25	70	79	26	
	Discharge Temp in cfs in of	Average Mean Daily	50	37	29	• ¶9	59	111	305	119	93	55	109	
	Date and time sampled	1957	1-28	2-28 1130	3-27	5-1 1005	5-29	6-27	8-1 1420	8-29	10-2	10-31	11-25	

nium (Cr), reparted here as OOO except as shown. o Iran (Fe), aluminum (AI), orsenic (As), capper (Cu), b Determined by addition of analyzed constituents.

c Gravimetric determination,

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Woter Branch (USGS), Pacific Chemical Cansultont (PCC), Metrapalitan Water District (MWD), Los Angeles Dept. of Woter B. Dever (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

Long Beach Dept. of Pub. Health (LBDPH) or United States Bureou of Reclamation (USBR) or State Department of Woter Resources (DWR) as undired. f Field pH except when noted with #

TABLE BARK
AMAINSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

monthly samples made by Galif Dept of Public Health, Division of Lithorniores, that Consultant (PC P), Meximollina Water District MWIII, I no Australa Leats of

	Analyzed by e		0.868	USGS	uses	USGS	nses	uses	nses	nses	nsgs	nses	uses	usgs
7	bid - Caliform													
707-	- pid th		∞	6	2	7	~	-	0.7	9.0	<b>=</b>	7	0.5	15
	000 N C		-	#	0	0	0	0	2	0	0	0	0	1
	Hordness os CoCO <sub>S</sub> Total N C	2	∄	38	36	8	21	24	33	35	39	37	31	34
Per	sod -		17	18	18	17	2	20	19	21	21	13	21	20
Tatal	solved solids in ppm						94				70			
	Other constituents					,	PO40.00 F. 0.03				PO40.05 A1 0.14			
	Silica (SiO <sub>2</sub> )		- 0			-1	128				77			
milian per millian	- Boron (8)	₹	0.0	0.00	0000	0.01	0.02	0.03	0000	0000	00.00	0.00	0.00	0.02
per mil	Flua- ride (F)	TA.					0.01				0.00			
parts per volents	Ni- trate (NO <sub>S</sub> )	BAR (STA.					0.0				1.2			
parts p equivolents	Chla- ride (Ci)	NEAR HICHIGAN	2.5	10.0	10.8	1.0	2.2	0.01	0.03	2.0	3.0	1.5	3.6	4.2 0.12
ç	Sul - fote (SD <sub>e</sub> )	AR X					0.0				0.0			<del></del>
	Bicar Su banate fo (HCO <sub>3</sub> ) (S		53	h1 0.67	32	£ 43	0.146	31	38	0.72	55 0	50	μ <sub>1</sub> 0•67	0°66
canstituents		1 -1	000	18	0000	19	18	18	0000	0000	12	0000	000	0000
Mineral	Carban- ate (CO <sub>S</sub> )	COSUMNES				-		-	00	<b>ା</b> ଂ		<b>o</b>	ീം	<b>ା</b> ଂ
	Patas- sium (x)	윙	0.03	0.03	0.8	0.02	0.02	1.1			1.8			
	Sadium (No)		4.3	3.9	2.7	3.1	2.6	2.9	3.5	4°4 0°19	5.1	3.8	3:7	4.0 0.17
	Magne- sium (Mg)		14.6	4.1	2.4	2.7	1.5	1.9			3.8			
	Calcium (Ca)		10 4.6 0.50 0.38	8.4 0.42	6.4 0.32	7.6	6.0 1.5 0.30 0.12	6.4 0.32			9 6 0			
	<u> </u>	,	7.3	7.7		7.3	7.3	7.3	6.	7.9		7.7	7.4	7.3
Specific	conductonce (micromhos of 25°C)		107 7	86.8 7	63.9 7.5	74.1 7	55.5 7	63.67	68.1 7	87.7 7	100 8.1	4 48	77.87	86.67
0,	1 6		103	96	105	98	66	300	104	91	95	96	105	8
	Dissolved oxygen ppm %S			11.2	12.2 ]	10.5	7.6	9.3	8.3	7.9	8.6	9.8	12.1	11.9
	Te of	-	45 12.5	164 I	148	-t-	62	67	82	2	70	59	149 1	₹
	Dischorge T		401	25 <sup>th</sup>	1500	794	μ12	176	145	16	13	32	118	7
	Date and time sompled	1957	1/14 0830	2/13 0845	3/11	4/15 0955	5/7	6/17 0820	7/17	8/19 0823	9/13	10/22	11/27	12/11

o Iron (Fe), aluminum (AI), orsanc (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as ehown. b Determined by addition of analyzed constituents.

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f Field pH except when noted with e-

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Anolyzed by e			uses	nsgs	USGS	uses	nsgs	nsgs	nsgs	nses	uses	nges	nses
		Soliform MPN/mi											Median USGS 62	Max. 7000	Min. 0.045
	Tur	bid -			6	50	~	7	10	8	-	2	25	2	041
		N CO3		_	91	2	7	m	7	0	0	0	7	2	6
		Hardness as CoCO <sub>3</sub> Total N C			124	91	101	96	96	92	91	78	105	112	96
L	۵	g cent 60d -			21	16	74	15	<u>13</u>	16	17	19	16	16	17
	Tota	solved solids in ppm						132				131			
		Other constituents						Cu 0.02A1 0.16 POu0.05 POu0.05			or office				
	,	Silica (SiO <sub>2</sub> )			- 22	7	81	10	<u>عا</u>	~	7	0 31	ات ا	0	0
001	per million	Boron (B)	12b)		0.05	0.07	0.02	000	0.14	0.03	0.02	00.00	0.01	00.00	0.20
8	: 1	Fluo- ride (F)	STA					0.00				0.0			
ports per million	equivolents	Ni- trote (NO <sub>3</sub> )	COTTONWOOD STA.					0.01				0.5			
	nbe	Chio- ride (Ci)			0.62	4.6 0.13	7.3	7.0	6.1	6.1	5.0	5.8 6.4 0.12 0.18	0.37	15	0.20
	č	Sut - fote (SO <sub>4</sub> )	K. NE					9.6				5.8			
	Minaral constituents	Bicor- bonate (HCO <sub>3</sub> )	COTTONWOOD CREEK, NEAR		132	1.77	122	11.87	1.79	119	111	104	120	130	1.77
	ral con	Corbon- ofe (CO <sub>3</sub> )	PONWOO	- :	0.00	00.00	0.00	00.00	0.00	0.00	00.00	0.00	0000	0.00	0.00
	Mine	Potos- C sium (K)	00		0.0		0.0	0.0	03.0			7.3		_	
		Sodium (No)			0.65 0	7.9 1.1	0.35	7.9 (0.34 0.	6.6	8.2	8.7	0.38 0	9.2	10	9.0
	Ì	Mogne-			1.09	10.82	0.90	9.4	9.4			8.8	10	10	. ,0
		Coicium (Ca)			28	00.00	25 25	15 0	1.15		-	0.85			
-		_			7.7	7.7	7.7	89	7.9	7.7	£.	7.3	<u>ش</u>	5.	7.7
-	0 -	nahos P C)						~			7		7	_7_	
	Specif	conductonce (micromhos at 25°C)			303	4 209	1 233	86 218	204	211	196	190	248	261	221
		Dissolved oxygen ppm %Sat			100	104	101		2 100	9.4 11h		108	16	92	96
				70	11.0	12.0	9.8	1,8	8.2	9.4	8.7	T. 6	4.6	6.6	11.5
		Ten in of		mp 14	53	641	63	62	79	2 29	•	73	5.8	75	94
		Discharge Temp		net sampled	297	1580	0911	550	100	136	62	80	174	295	1390
		Dote ond time sompled	1957	Jan.	2/14 1145	3/13	4/9 1330	5/7	6/11 1540	7/9	8/13 1550	9/17	10/23	11/13	12/19 0845

o iron (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), monganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{400}$  except as shown. B Determinad by addition of analyzed constituents carefully constituents.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dispt.of Public Health, Division of Labartes.

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f Fisid pH except when noted with a

P), City of Los Angelas Dapt of Pub Health (1 ADPH),

		Anolyzed by e		USGS	usgs	uses	USGS	USGS	ascs	USGS	USGS	USGS	uses	uses	uses
		MPN/mi													
	1	mada u		0.7	н	-	0.3	6	t. 5	-	0.5	-	7	0.5	7
		CO3 PPR PPR		0	0	0	0	0	0	0	0	0	0	0	0
				5.8	26	#	#	₹	34	16	100	119	7,9	52	38
		1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0		27	28	21	23	23	27	22	28	50	25	8	23
	Totol	Solved solids in ppm						8.				2 192			
		O Diner constituents					A) 0.05 Cm 0.01				Tot. Alk. 154	Pot 0.05 41 0.05 Tot. Alk. 169	4		
		On Silico		7		গ্ৰ	<u></u>	<u>ম</u>	99	5	2	<u>크</u>	8	8	6
	million per million	Fluo-Boron (F)		0.17	11.0	00.00	0.03	0.00	90.0	0.01	0.10	0.00	0.03	0.0	0.01
	e l		95			· · ·		0.00 0.01				0.0100			
NO	ports p	Ni- trote (NO <sub>S</sub> )	STA								iol o	10		0/2	0.00
EY RECION	nba	350	NEAR VINA	3.0	0.11	0.05	0.06	0.06	3.5	3.8	0.16	0.18	0.11	5.9	0.08
VAL LEY	ē.	Sul - fote (SO <sub>4</sub> )						0.02				2.9			
CENTRAL	constituents	Bicor- bonote (HCO <sub>3</sub> )	R CREEK	1.51	1.43	0.75	1.03	1111	1.18	138	132	163	1.56	1.38	5th 0.89
CE		Corbon- ote (CD <sub>S</sub> )	DEER	00.0	00.00	0.00	0000	00.00	0000	00.00	11 0.37	0.10	00.00	0.00	0.00
	Minerol	Potos- Sium (K)			1.6	0.0		1.2	1.5			3.2			
		Sodium P (No)		10 1°6 0°44 0°04	0.10	4.3 0.19	5.9 1.2	6.2	8.2	12 0.52	18	11000	9.9	11	5.2
		Mogne- S. sum (Mg)		6.8	6.9	0.33	4.5	4.5	14.5			1.28		15	
		Colcium W		0.60	0.55	7.1	9.0 0.45	0.50	0.55 0			1,10			
		_		7.3	7.7	7.3 7	7.7	7.5	7.9	7.9	μ°8	8°0 11	7-7	7-7	7.3
	01,	Phose of		7	7		7	7	7	7	∞	<b>6</b> 0		7	
	Speci	conductance (micromhos of 25°C)		155	146	80.2	105	111	120	222	242	280	162	148	95.9
		Dissolved Daygen ppm %Sot		95	102	104	102	96	8,4 103	96	1117	115	98	98	66
		Disse pxy ppm		12.8	11.6	12.1 104	10.1	8	# ®	7.8	8.8	9.8	57 10.2	53 10.7	11.8
		Te mp		3	ß	9	19	68	79	&	88	75	57	53	34
		Discoorge Temp in cfs in aF	Mean Daily	66	136	720	187	247	70	1.1	2,8	3.4	123	147	62 <sup>th</sup>
		Dote ond time sompled	1957	1/11	2/14 0955	3/13	11,40	5/7	6/11	1/9	8/13	9/17	10/23	11/13	12/19

o Iron (Fe), oluminum (AI), preenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Gr), reported here as 300 except as shown. Determined by addition of analyzed constituents.

Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborotories.

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f Field pH except when noted with e

ANALYSES OF SURFACE WATER TABLE B.,14

CENTRAL VALLEY REGION

		Anolyzed by e		USGS	uses	usgs	nsos	USGS	SOSU	uses	USGS	USGS	USGS	USGS	USGS
		Coliform d											Median 230	Max. 7,000	Min. 2.3
	1	- piq		<b>4</b>	6	2ф	6	71	10	7	6	0.9	14	5	rv.
		Hordnass os CoCO <sub>3</sub> Total N.C.		0	0	0	0	0	0	0	0	0	0	0	0
				69	65	3	52	147	3	19	59	89	8	52	62
	a	sod -		28	28	22	21	28	27	33	33	33	25	23	26
	Total	Solved solids in ppm						91				1 133			
		Other canstituents					20 0 20 0 24	Pot 0.20 &			22 0 03	POL 0.30 F 0.01			
		(S)(02)	38			151	rort	12		-01	-61	75			
	Ilion	5 1	STA	2000	0.11	0-07	0.02	0.07	000	0.00	0000	0.10	00.00	0.00	0.0
	ports per million volents per million	Fluo- ride (F)						0.01				0.01			
	રું <u> </u>		GROVE					0.0				1.1			
	equivolents	Chlo- ride (Cl)	NEAR WALNUT	7.0	7.4 0.21	5.2	4.5 0.13	5.9	5.0	8.7	9.2	0.31	5.0	5.0	0.18
LEY	<u>=</u>	Sul - fote (SO <sub>4</sub> )						8.1				11			,
CENTRAL VALLEY REGION	constituents	Bicor S bonote (HCO <sub>3</sub> ) ((	CHA KINEL	248	1.38	59	1.05	62	1,000	72	1.88	1.54	78	62	1.28
CENT	Mineral cons	Corban - 6	A CROSS	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000	0 0
	M	otos- sium (K)	DEL TA	1.3	1.3	1.0	1.0	1.1	0.02			1.8	,		
		Sodium Po (No)		12 0 0 52 0	12 0 0 52 0	6.3	6.6	0.38	0.340	13	13	0.70	9.0	7.2	10 44
		Mogne- sium (Mg)		7.3	2,0	4.5	4.7	4.1	4.5 0.37			8.0			
		Colcium (Co)		14	14 0.70	11 0.55	13	12 0.60	11 0.55			14 0.00			
		3° 44		7.5	7-3	7.3	7-3	7.3	7.3	7-7	7.5	7.5	7.4	7.3	7.3
	£	tance mhos 5°C)				7				7	7				
	0	canductonce (micramhos		179	176	121	132	136	129	171	171	203	159	135	162
		=		96	16	98	88	₩	93	93	<b>1</b> 8	72	87	22	8
		Dissolved oxygen ppm %Sc		11.5	11.0	10.8	9.0	8.1	8.5	8.1	7.5	6.3	හ හ	10.3	10.6
		Te m in OF		34	ß	52	59	₹9	89	73	٤	72	59	51	44
		Discharge in cfs		Tidel Area											
		Date ond time sompled	1957	11/11	2/15	3/22	1050	5/9	1320	7/15	8/9	9/12	10/24	11/25	12/13

o Iron (Fe), aluminum (All, arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as an except as shown.

b Determined by addition of analyzed constituents.

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\*\*Fleid ph except when nated with \*\*

TABLE B-14

Angelso Dapt of Wolfer & Fower (L. ADWP), City of Los Angelso Dapt of Pub Hadith (L. ADPH),

ANALYSES OF SURFACE WATER

CENTRAL VALLEY REGION

		Analyzed by 6			USGS	uses	USGS	uses	USGS	USGS	nses	USGS	USGS	USGS	USGS	USGS	
		NPN/mi									_			Median 62	Max. 2,400	Min. 0.62	
	_ II.	- pid			7	15	16	20	0		&	8	无	16	10	2	
		Hordness os CoCO <sub>3</sub>	N E		39	74	61	901	8	10	20	28	19	94	7	00	
			Tatal		145	185	157	192	92	R	85	92	95	166	135	124	
	0	sod -			52	52	51	<b></b>	<b>3</b>	无	44	\$	641	52	53	475	
	Total	solved solids	n por						198				239				
		Other County County							Zn 0.22 Pb 0.06 Zn 0.01 R				PO <sub>11</sub> 0.25 Fe 0.14				
		Silica	(2015)			-			18			_1_	8				
	Hion	Boron		92)	0.34	0.24	0.24	0.28	0.4 0.14	0.01	0.06	0.12	0.00 0.00	0.20	0.21	0.27	1
ocilli e		Fluo-	E.	STA.					10					·	•	·	1
Z of the	i I i	- IN	(NO <sub>3</sub> )	DOTA					1.3				2.0				00
CENTRAL VALLEY REGION	equivolents		(CI)	DELTA-MENDOTA CANAL NEAR MENDOTA STA.	91 2.57	3.84	3.10	3.24	1.18	24 0.68	1.30	1.33	1.78	3.19	2.79	2.48	0
AL LEY	ū	100	(80,	ANAL				_	36	_			32				
ZAL V	tuents		(HCO <sub>3</sub> )	OTA	129	135	117	105	1.23 0	0.80	1.29	78	1.52 0	146	110	1-48	1 07
CENT	constituents			-MOM-	0.00	0000	0.00	000	0.00	0 0000	0.00	0.00	0.00	0.00	000	0.0001	
	Mineral	s- Carl	(co <sub>3</sub> )	DELTA				1			0					0	
		-	×		0.07	3.4	3.6	30.08	1	2.2	.1.		2.9	-	1.		1
		Sodium			3.13	4.13	3.4	3,26	88	0.87	# B	35	12.2	3.57	3.04	2.87	
		Mogne-	(Mg)		1.20	1.60	1.34	12,74	0.74	4.1			10				
		Colcium	(Co)		1.70	42	1.88	2,10	1,10	13			1.05				
-		<u>ت</u>	44		8,3	7.7	7.9	7.9	7.7	7.3	7.6	7.7	7.9	8.1	0.8	7.7	
	Specific	canductonce (micramhas	200		9479	822	685	246	326	200	331	332	118	708	623	595	
			%Sot		114	ħ01	601	89	87	98	98	7	76	103	93	85	
		Dissolved	waa.		13.8	10.9 104	10.6 103	8.6	8.1	7.7	7.2	6.5	8.2	9.5	9.6	10.8	
t		Te mo in OF	-		75	26	58	63	38	2	77	76	73	49	95	&	
		Discharge in cfs			NOT												
		Date and time		1957	1/7	2/18	3/18 1545	1345	5/13	6/10	7/10	8/5 1345	9/24 1315	10/14	11/19	12/16	

o Iron (Fe), oluminum (Al), presnic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 00 except as shawn.

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CENTRAL VALLEY REGION

	Analyzed	by e			uses	USGS	USGS	USGS	USGS	USGS	USGS	U SGS	nses	0.50.5	USGS	USGS	
	Hardness bid - Caliform d	-												Median 146	Max. 7000	Min. 2.3	
	- pig -	Y C			10	10	19	15	22	35	30	20	20	11	7	6	
	5 6 6	S C C C	E		50	65	62	50	38	15	11	53	19	43	×	35	
	Hardr	Total			144	176	160	116	113	81	99	174	94	133	111	901	
	Per-	- pos			52	52	50	17	145	145	37.	51	20	641	52	52	
	Dis-	spilos in ppm	4						250				235				
		Other constituents							A1 0.07 Zn 0.02 PO <sub>4</sub> 0.20 Fe 0.03				PO <sub>11</sub> 0.20 Fe 0.05				
		(SiD <sub>2</sub> )	_						19				16				
uo		Baran (B)		( <del>1</del>	0.23	D 38	0.11	0.15	D.12	0.20	0000	0.16	0 0 14	0.19	0.12	0.25	
E III	r lad	ride (F)		(STA.					0.01				000				
ē		trate (NO <sub>S</sub> )	,						1.1				1.7				
		Chio- ride (CI)		NEAR TRACY	3.16	3.78	3.24	1.69	1.92	1.30	22 0.62	3.78	1.92	91 2.57	82 2.31	2.23	
<u> </u>		Sul - fate (SO <sub>4</sub> )		CANAL					36				26				
constituents in		Bicar- bonate (HCO <sub>3</sub> )			115	2.21	11.95	81	92	1.31	1.10	147 2.41	1.51	1.80	92	86 1.41	
		Carban – B ate (CO <sub>3</sub> )		DELTA MENDOTA	0000	00.0	00.00	000	0.00	0000	0000	00.00	00.00	00.00	00.00	00.00	
Mineral		Srum (K)		DELTA	2.3	3.0	3.5	0.06	2.4 0.06	0.06			2.9				
	H	Sadium Pa (Na) s	+		3.18 0	3.96 0	3.35 0	38 2	1.87	32 2	18	3.57	1.96 0	2.53	2.33	52 2.26	
	-	Magne- So sium (Mg)	-	•	1018	10.57	16 1 1 35	12 1.02	00.00	6.9			11 0.94				
	$\vdash$	E G											0.95				
-		Calcium (Ca)	-		7 34	7.5 39	7.5 37	7.3 26	7.3 27	7.7 21	<u></u>	8*1	7.7	7-7	7.3	7.3	
$\vdash$	. 8	() A	+-		7.7	7.	7.	7	7	7.	7.3			7	- 7	7	
	Specific	micramh at 25°(			658	800	701	425	14741	324	213	755	<b>ħ</b> 2ħ	558	502	1481	
					98	89	87	83	82	100	48	82	91	91	94	96	
	Dissol	oxygen ppm %So			10.9	9.5	8.7	8.0	7.5	8.9	7.0	7.1	7.8	8	8	8.7	
	Ē				51 1	55	09	63	99	71	77	74	75	62	53	64	
	Discharge	in cfs in			0	860	865	2595	2590	4160	3390	2556	098	865	860	0	
		and time sampled		1957	1/15	2/14 1150	3/12	4/16 1245	5/8	6/18 0835	7/16 0815	8/20 1300	9/11	10/23	11/26 0825	12/12	

a Iran (Fe), aluminum (AI), arsenic (Aa), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 20 except as shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analysee of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labaratories.

e Minaral analyses mode by USGS, Duality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub. Health (LADPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

## ANALYSES OF SURFACE WATER TABLE B-14 CENTRAL VALUET RUGION

meth Dash of Pub Hants (Labbid) of State Department of Words Desured Covers (DAS), Marcopolism Water Desired (MWD), 1 on Angelse Dash of Worse & Power (LADWR), City of Line Angelse Dash of Fub Hautsh (I

	Analyzed by s	7.5.3.5																
· ·	bid - Caliform ity MPN/mi																	
TuT	- pid		10	0		01	122						. ^	16				
	Hardness as CoCO <sub>3</sub> Tatal N.C. ppm ppm		138 45	160 59	183 73	191, 72	231, 12	164 03	111 38	165 68	191 96	127 59	178 76	126 55	96 30	11/1 29	3 10	2 12
	sod - Pa		52 1	54 1	52 1	52	2 74	1767	1 27	17 1	176 1	1,21	17 1	1,2	107	1,8	1,5 68	1,3 72
otol	solved ac		370	1,37	1,93	1,82	571	708	266	700	1,48	289	153	310	222	352	161	160
	Other constituents				Fe 0.01	Fe 0.00	Fe 0.00	Fe 0.02	Fe 0.01		Fe 0.00	Fe 1.02	Fe 0.30	Fe O.Ol.	Fe 0.07 Al 0.16 Cu 0.01 (a)	Fe 0.01	Fc • 3	Pe 02
	Silica (SiO <sub>2</sub> )				27	27	28	277	118		23	22	25	23	179	21	21	<u>al</u>
an	Boron (B)		0.36	0.47	0.47	0.42	0.35	0.31	0.18	0.26	0.10	2 0.27	2 2 2 2	0.20	200	- 30	17.7	60
er millian per million	Fluo- ride (F)	- 6			0.00	0.00	0.3	0.3	0.0		7 0 1	0.02	0.0	7 0.3	2 C	200	00.0	53 1.01
parts per millian equivatents per mil	rrate (NO <sub>3</sub> )	(STA.			0.0	3.5	7.7	0.0	1.9		3.7	7	1.6	2.7	1.6	2 2 2	1.9	2 1
e qui	Ohla- ride (CI)	THACY			3.8	3.92	151	THE STATE OF	02		3.10	70	129	25.1	1.3	100 2.83	37	1.2
ri s	Sul - fote (\$04)	L NEAR	56	65	83	<sup>80</sup> 1.67	102	63	0.83	73	1.13	55	60	271	26 0.54	38	0.33	12.
constituents	Bicar- bonate (HCO <sub>3</sub> )	TA CANAL	113	123	134	136	136	123	89	106	101	136	72.15	97	30	2.29	71	73
1 1	Carban- ate (CO <sub>3</sub> )	ra-teiro	00.00	0000	0.00	0000	0000	0000	0.00	0000	0	0000	0 -	0000	00.00	0000	000	0000
Mineral	otos- Bium (K)	DEIL	2.6	2.0	3.6	3.14	3.6	3.4	2.1	2.8	200	2-3	2.8	2.9	0.07	3.6	2.06	2.5
	Sadium (No)		3.04	3.83	93	93	97	73	2.00	68	3.13	1.91	3.26	1.91	31	63	27	<sup>26</sup> 1.13
	Magne- sium (Mg)		1,10	17	20	20	26	13 1.48	12 0.97	13	18	13	1.10	11/4	10	1.18	C	9.
	Calcium N (Ca)		32	36	2.05	2.05	2.54	36	25	35	2,10	29	2,10	1.35	22	3/1	1.35	0.10
	Ĭ.↔		7.7	0	7.5	7.6	7.6	7.4	7-7	7.7	6.8	6.3	6.8	7.4	7!4	7.6	7.1	른 :-
Specific	conductonce (micromhas at 25°C)		638	6172	825	828	930	685	1,50	790	725	477	734	1/9/1	352	296	275	2914
	Dissalved axygen ppm %Sat																	
	e Temp in 0F																	
	Discharge Temp in cfs in oF	AVERAGE NEAN DAILY	2179	250	2450	870	2500	930	1880	2352	2560	2670	1770	1900	2360	1660	1780	2700
	ond time sampled	1957	1/5	1/20	2/2 - 8-12	2/16 - 28	3/1 - 7	3/8 - 17	3/18 - 29	3/31	1/1 - 8	1,79 – 19	1,/20 - 24	1/25 - 30	5/1 - 19	5/21 - 22	5/23 - 31	0/1 - 6

o Iran (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 00 except as ehown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif Dept of Public Health, Division of Laboratories.

E Mineral analyses mode by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water (LADWP), City of Los Angeles Dept at Pub Health (LBDPH), Los State Division of Water Resources (DWR), as indicated. f Field pH except when noted with a

B-113

ANALYSES OF SURFACE WATER

## ANALYSES OF SURFACE WATER TABLE B-114

Cen .ral Valle, Region

	Analyzed by 9	U.S.3.S.																
	lity MPN/ml																	
	Pid - 14y								.0	.0								
	Hordness os CaCO <sub>3</sub> Totol N.C. ppm ppm			77	3 16	12	154 59	17	5 26	156 56	0 18	1/1/1	50	169 49		132 29	135   33	136 43
-	Per- cent sod - ium To			39 142	178	38 64	1,6	39 74	96 51	17 13	1,8 90	17 17	148 92	1,9 1,0		18	51 13	50 13
	solids so solids lin ppm (c)			100	176 1	130	394	146	201	347	221	3/19 1	225	117		320	34,3	347
	Other constituents			Fe 0,01	Fe 0.05	Fe -10		Fe 0.17	Fe 0.03	Fe 0.01	Fe 0.04	i'e 0.19	Fe 0.18	Fe 0.12	7e .72 8n 1.04 A1 7.13 Cu 1.71 (a)	Pe 0.03	Pe □,0 <u>11</u>	Fe00
,	Slica (SiO <sub>2</sub> )			13	2 12	3 16	-I1	3 18	7 1.8	13	17	2 19	17	3 21	10	5 26	7	22
lion	Fluo-Baran ride (B)			0.00 0.13	10.00	1.08	[-]	0.03	2007	0.01 0.01	0.14	0.222	0.1 0.0	2 0.23	.3 0.20	0.01	0.1	0.01
1 2	_	93) (Cont.)		0.03	1.6	11.7	1.5	020	0.02	0.03	03	2.6	1.5	2.1	0.12	1.7	27	3.3
ports	ibla- Ni- ride trate (CI) (NO <sub>3</sub> )			21 1	1.24	lo.	2.82	27 1	10	3.13	5 6	3.13	18	3.07	202 102 0	2.13	96 4	2.76
		TRACT (STA.				COL								1m				
its in	Sul - fate (SO <sub>4</sub> )	Jana Di		12	.20	9.6	910	25	24	0.97	15.33	34	0.31	90	36	36	110	115
constituents	Bicgr- bonate (HCO <sub>3</sub> )	CANAL		46	76	1.05	116	1.15	35	2.00		122	I I	2.39	137	2.27	125 2.05	113
Mineral co	Carbon- ate (CO <sub>3</sub> )	ATL OLD		0	00.00	00.5	0000	0	000	00	0 -	00.00	000	000	000	015	000	0.00
M.	Potas- sium (K)	DUCTA-		20.0	2.0	2.2	01.0	0.05	2.6	3.5	2.0	3.7	0.00	1.3	100	3.5	3.7	3. 3 0.08
	Sodium (Na)			13	26	19	63	22	38	566	37	2.37	1,0	3.39	3.00	59	2.37	65 2.33
	Magne- sium (Mg)			1.1	7.0	7.1	13	0.5	13	21		1.28	111	17	17	1.19	1.15	11, 17
	Calcium (Ca)			10	1.3	114	30	0.70	17	23 1.10	0.90	32	19	39	30	29	31	31
	.∺ H			7.0	_27 <sup>†</sup> 	7.0	7.2	.0	7.:-	7.1	7.4	7.5	7.0	<u></u>		ς.	ř.	7.2
	Specific canductance (micromhos at 25°C)			158	296	232	200	252	378	O <sup>†</sup> ?o	398	034	108	7.1	01/9	55,	593	603
	Dissolved axygen ppm %Sat																	
	Discharge Temp in cfs in 0F		AV. wae Itali Daluy	3117	3380	3530	3520	3/160	32%0	3040	2840	2360	18 19	1730	1330	1710	880	570
	Date and time sampled		1957 A	6/7 - 111	6/15 - 30	7/1 - 3	7/7	7/ 31	8/1 - 16	3/17 - 19	3/20 - 28	9/29 - 9/2	9/3 - 10	9/11 - 19	9/20 - 30	10/1 - 10	10/11 - 20	10/21 - 31

o Iran (Fe), aluminum (AI), prsenic (As), capper (Cu), 1sad (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as 00 except as shown.

b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and rangs, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

E Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water B. Angeles Dept. of Angeles Dept. of Angeles Dept. of Mater Branch (LADPH), as indicated.

Long Beach Dept of Pub Health (LBDPH) as State Division of Water Resources (OWR), as indicated.

f Field pH except when noted with \*

ANALYSES OF SURFACE WATER TABLE B - 1h Central Valley Region

sector hap of Dob Hadin ( KDFH) or gives Division of World frequested (WMF), as indicated Marrapolitan Woler District (MWD), Los Angeles Plans ( ADWF), City of Los Angeles Dept of Dob Marrapolitan Woler ( ADWF), City of Los Angeles Dept of Dob Magnetic ADFH)

	Anolyzed by e	U.S.G.S.					
	bid - Coliform d	pud.					
	pid u						
	Hordnese oe CoCO <sub>3</sub> Totol N.C. ppm ppm			139 46	109 35	36	22 1,7
	sod - oe ium To			51 13	51 15	51 1	1,9 122
lo to	solved so solids in ppm (c)			300	285	2.30	2 12
	Other constituents						
	Other			1/6	rie 1.00	90.	Fe July
	(SIIico			23	173	17	27
on	Boron (B)			0.29	1 -18	1/1 · / /	0 -21
er million per million	Fluo- ride (F)	93)(Cont.)		20 1.2	10.2	1.17	0.00
ports per million	Ni- trote (NO <sub>3</sub> )			3.0	2-7	2.5	1.3
ying e	Chlo- ride (Cl)	AR TRUCY (STA.		102	35	86.5	0 2.29
C- 80	Sul - fote (SO <sub>4</sub> )			1,8	32	3.6	11/4
atituents	Bicar- bonofe (HCO <sub>3</sub> )	NAL C		1114	90 1.1	1.14	1.51
Mineral constituents	Carbon - ote (CO <sub>3</sub> )	Man and		0	00	000	0000
Min	Potas- sium (K)	DRLTA-		3.3	2.5	2.h	2.7
	Sodium (No)			2.76	73	2.35	2.39
	Mogne- sium (Mg)			1.12	11	11 0.71	
	Colcium (Co)			32	25	25	26,1.30
	Ŧ			7.1	7.1	7.2	2.5
	conductonce (micromhas at 25°C)			623	500	193	516
	Dissolved oxygen (						
	Discharge Temp		2	0	0	9	0
	Dischar in cf		AV , Or NE TANN DAIGY	170	0611	0001	170
	Date and time sompled		1957	11/1 - 9	11/10 - 20	11/21 - 30	12/1 - 18
	0 %			77	11,	11	12,

o iron (Fe), oluminum (A1), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 00 except as ehown.

b Determined by addition of analyzed constituents

c Grovimatric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Collf. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USSS, Quality of Water Branch (USSS). Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angelee Dept. of Water & Pawer. (LADWP), City of Las Angeles Dept of Pub Health (LADPH), Las State Division of Water Resources (DWR), as indicated. f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-11

CENT. AL VALLEY REGION

	Andlyzed by e			NS BR	USBR	NS 814	US BR	Uobn
	bid - Coliform							
Tur	Pad r DEG							
	Hardness oe CaCO <sub>3</sub> Total N.C.							
G.	e cent							
Total	Salved solids in ppm			128	160	428	384	260
	stituents							
	Other constituents							
	Silica (SiO <sub>2</sub> )							
nillian	5	108.7						
parts per million equivalents per millian	Fluo- ride 3) (F)							
parts	Chlo- Ni- ride trate (CI) (NO <sub>3</sub> )	300 da						
1	Sul - Chi tate (SO <sub>4</sub> ) (C	AD TABK	Will William					
tuents in	Bicar - Su bonate ta (HCO <sub>3</sub> ) (Si	THE PURPLEMENT AND MADE TO THE TOTAL CHARACTER TO THE TOTAL CHARACTE	WI IN		-			
Mineral canstituents	Carban Bic ale bol (CO <sub>3</sub> ) (HC	1013	O COLOR					
Mineral	Potas- Car Sium (K) (C	no lu	5000					
	Sodium Posisi (Na)				-			
	Magne- So sium (Mg)							
	Cotcium Mc							
	H GH							
Specific	conductance (micramhas at 25°C)			217	207	619	712	355
	gen gen							
	Discharge Temp in cfs in OF	Tidel		70	7/2	7/2	72	70
		Tic						
	Date and time sampled	1957		5-29 0840	6-27	8-1 1035	8-29	9-26

o Iran (te), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as \$\frac{00}{000}\$ except as shown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculated fram analyses of duplicate monthly somples made by Calif. Dept of Public Health, Division of Lobaratories.

e Mineral analyses made by USSS, Quality of Water Branch (USSS), Pacific Chemical Consultant (PCC), Matrapalitan Water District (MWD), Las Angales Dept. of Mater Branch (USSS), Pacific Chemical Consultant (PCC), Matrapalitan Water District (MWD), Las Angales Dept. of Duby 1, City of Los Angales Dept. of Pub Health (LADPH), Long Beach Dept of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as Indicated. f Field pH except when noted with #

ANALYSES OF SURFACE WATER TABLE

Los no Ancales Deporto of Works & Power (LADWP), City of I as Angeles Dept of Pub Health (LADKH) Hescurran (UWAS), on indicessal

CENTRAL VALLEY REGION

	D	T					
	Analyzed bye		USBR	USBIT	USBR	USBR	USBR
	bid - Caliform						
1	bid - C						
	CO3 N C						
0 0	de sod -		60	0			9
Tote	solved solids in ppm		108	1740	376	281	196
	Other constituents						
	n Silica (SiO <sub>2</sub> )						
ion	Boran (B)						
parts per million equivalents per million	Fluo- ride (F)	1, 112a)					
parts p	Ni- trate (NO <sub>3</sub> )	P(Sta					
equi	Chio- ride (CI)	14 883					
n s	Sul - fate (SO <sub>4</sub> )	HUVER AT NEEB PUMP(Sta.					
constituents	Bicar- banate (HCO <sub>3</sub> )	SE RIV					
	Carbon- ate (CO <sub>3</sub> )	FALSE					
Mineral	Patas- Co sium (K)						
	Sodium Po						
	Magne-Soc sium (N						
	MOS N.S. (r						
	PMf Colcium						
- ic	mhos pt						
	(micromhos at 25°C)		176	175	536	522	247
	gen %Sof						
	Discharge Temp in cfs in of	Ta.	779	76	17.7	22	1
	Discha in ct	Tidal					
	ond time sompled	1957	29	28 50	1,45	29	£ 9
	8	1	5-29	6-28 1150	8-1	8-29 1030	10-3

o Iran (Fe), aluminum (AI), arsenre (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as  $\frac{1}{0.00}$  except as shawn. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labarde. Pawer. (LADWP), City of Los Angsies Dept. of Pub Health (LADPH), e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (LADPH), City of Los Angsies Dept. of Pub Health (LADPH) or United States Bureou of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when noted with #

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE Bally

CETTICL VALLEY REGION

	yzed		USGS	50.11	UCC 1	USGS	u sos	USGS	usgs	USGS	uses	usgs	USGS	USGS
	d Anolyzed by e		Ð	end part	*-	D	Þ	n	n	ם	Ω		n	D
	MPN/mi											Median 230	Max. 7000	Min. 0.62
	bid- hpd n		2	(C)	30	14	7	30	20	~	∞	rv	2	50
	Hordness as CaCD <sub>3</sub> Tatol N.C.		c	0		0	0	2	<del></del>		0	0	0	9
_			3 54	3 50	14 31	36	5 31	16 3 <sup>1</sup> 4	15 73	5 63	8 52	16 55	16 56	18 36
	Sad -		18	18	F-1	15	16	- i		15	18	<del></del>	<u> </u>	
1	solids solids in ppm						73				85			
	Other constituents						Fe 0.06 A1 0.05 Zn 0.05				Ро <sub>11</sub> 0.05 в			
	(SiD2)		Öl	m	£4 -	-TI	15		ना	<u> ⊅1</u>	0.0017	N -	01	9
on illion	Baron (B)		00.00	0.03	0.00	0.01	0.08	0.01	0.11	0.0	0	0.12	0.00	0.16
ports per million		6					000				00			
ents pe	rote (NO <sub>5</sub> )	STA.					00.0				1.6			
constituents in equivalents	Chlo- ride (Ci)	1 Sil. 1/2	2.2	3 0 0 0 0 0	10° C	1-4	0.5	1.8	9.2	3	2.4 5 0.07	0.0	2.0	2.0
ē	Sul - fate (SD4)	E )					1.0				2.9			
constituents	Bicar - S bonate (HCD <sub>3</sub> ) (	Tr. M	7 <sup>l</sup> t	1.13	30.53	U.1 0.72	14th 0.72	39.0	84 1.38	76	72	1.15	1.18	36
	Carbon-	7	0000	0.00	00	0.00	0000	0.00	0	0	0 00	0000	000	000
Mineral	Potos- Sum (K)		1.0	0.03	7.5	0.03	0.5	0.0		-	2.1			
	Sodium (No)		5.8	5.4 0.23	2.4	3.1	2.8	3.0	0.25	5.4	5.5	0.21	5.0	3.6
	Magne- S		1.6	0+0	200	3.4	2.3	3.0			14.1			
	Calcium (Ca)		14	12	6.1	8 8 0	8.6	8.7			14 0.70			
	1 S		7.3	7.5	7.1	7.4	7.3	7.3	7.7	7.7	7.7	7.5	7.5	7.2
	Specific conductance (micrombas at 25°C)		135 /	122	9.	78.5	80.2	75.4	147	139	126	125	117	80
	÷		96	†0;	102	26	96	η6	68	06	102	96	46	95
	Dissalved oxygen ppm 9/05		13.0	12.1 104		10.3	9.2	9.0	7.4	7.6	9.1	10.0	10.7	11.5
	Te o n		37 1.	153	F'	55 1	† <sub>9</sub>	† <sub>1</sub> 9	78	92	71	57 1	53 1	1511
	Dischorge T	Mean	3210	3520	33,000	8360	8700	6610	1000	807	2090	3380	3240	13,800
	Date and time sompled	1231	1/10	2/13	2/11	2/20	5/6	6/10	7/8	0835	9/16 0845	10/22	11/12	12/23 0850

o Iron (Fe), oluminum (AI), areanic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as and except as shawn. b Determined by addition of analyzed constituents.

c Grovimetric defermination,

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dspt. of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Lae Angeles Dept. of Pub Health (LADPH),

Lang Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

## ANALYSES OF SURFACE WATER TABLE B-11

District (MWD), Las Anysiss Dabi of Wales & Posser (LADWP), City of Los Angeles Dapi of Pub Health (LADPI),

CETTRAL VALUEY TAGICAL

	Analyzad		ندين ل	Usico	cicol	ຣກາດ	User	ນລະດ	USGS	Usia	U.S.U.S	Usigs	Uses	USGS	فحددال	USGS	Dodo	U3GS	USGS
	Caliform MPN/ml																		
	bid- higa n																		
	Hardness as CoCO <sub>3</sub> Tatol N.C. ppm ppm									0	- 13	m 	- 2		0		0		
_			58	78	52	200	72	38	56	21 24	15 144	15 36	16 38	15 36	16 38	16 38	16 37	15 29	15 32
-	cent cent cent cent cent cent cent cent		93	116	88	96	96		89	72 2	76 1	72 ]	70	64 1	72 1	72 ]	99	58 1	9
Tate	Salved solids in ppm (c)													9		- 2			9
	Other constituents																		Fe 0.07 Al 0.16 a
	Silico (SiO <sub>2</sub> )																		
millian per million	Boron (B)																		
e		30)																	
parts p	Chia- Ni ride tro (CI) (N(	LAUS(St.																	
i.	Sut - Ch tate ri (SO <sub>4</sub> )	AT NICO			-				-										
canstituents	Bicar St banate to (HCO <sub>3</sub> ) (S	HER KIVER AT NICOLAUS(Sta.	76	100	65	73	99	179.0	30	37	38	01,06	0.72	14.3	975	115	115	3h 0.56	38
	Carban - Bi	FEATHE	0.00	0 00	00.0	0.00	0000	00.0	000	000	00.0	0.00	00.00	000	000	000	000	000	000
Mineral	sium (K)		10	10	10	10		10	10	10		10	10	10	10		10	10	10
	Sogium (No)		h.9	0.20	0.20	0.21	0.21	2.9	2.3	2.9	3.6	2.9	3.2	3.1	3.2	3.2	3.3	2.2	0.11
	Magne- S sium (Mg)		5.0	7.4	0.37	5.0	0.37	3.4	2.3	1.0	5.14	3.2	3.9	3.2	3.2	3.4	3.4	2.7	3.2
	Calcium (Ca)		15	19	13	15 0.75	13	9.6	6.6	8.0	8.8	9.2	8.8	9.2	10	9.6	9.2	7.6	7.6
	H c4		6.8	7.1	6.8	6.8	6.9	6.9		7.4	7.0	7.0	7.2	7.7	7.1	7.1	7.7	7.4	7.4
9	conductance (micramhos at 25°C)		137	171	125	139	123	6.06	67.8	76.0	91.1	85.3	87.8	84.0	91.9	88.4	86.3	68.0	72.5
	Dissolved axygen ppm %Sat																		
	e Temp in 0F																		
	Discharge Temp	Average Mean	2800	2520	7000	3290	4620	43,400	67,470	27,420	36,000	15,140	8600	10,750	7780	8610	05719	36,400	17,290
	Date and time sampled	1957	1/1-6	1/7-8	1/9-31	2/1-8	2/9-23	2/24-25	2/26–28	3/1-5	3/6-8	3/9-31	ή/1-1/η	L/15-20	4/21-30	5/1-10	8/m-18	5/19-21	5/22-31
											8-1								

o Iran (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborataries.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWD), Los Angeles Dept. of Water & Pawer. (LADWP), City of Las Angeles Dept at Pub Health (LADPH),

Long Beach Dept of Pub Health (LBOPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated

f Field pH except when nated with #

TABLE BALL

ANALYSES OF SURFACE WATER CENTHAL VALLEY REGION TABLE B-14

	Anolyzed bye		USGS	USGS	USGS	U.S.G.S	USGS	USGS	usas	USGS	0563	USGS	usgs	USGS	USGS	Usigs	ນວີດວີ	usgs
	MPN/ml																	
	- pid - pid - bid - pid - pid																	
	Hardness as CaCO <sub>3</sub> Totol N C.		m	- 2	0	°	· ·	0	0	0		0	0	-	m	0	0	62
			36		82	76	715	98	62	62	99	99	19	29	8	725	3 574	011 6
	Sod -																18	
Tota	solved solved in ppm		775	58	105	100	78	100[	96	89	92	96	93	96	777	96	93	151
	Other constituents															Al 0.02 a Zn 0.02	Fe 0.00	Ре <u>0•01</u>
	Silica (SiO <sub>2</sub> )										-					<u> </u>	51	19
lion	Boron (B)																0.01	0.04
per million	Flua- ride (F)	(p, q)															0.0	0.0
اية		20) (cont'd)							<del></del>								0.0	1.1
parts p	Chla- ride (Cl)	(Sta.															3.3	3.2
ĉ	Sul - fate (SO <sub>4</sub> )	ICOLAUS															0.10	8.6
canstituents	Bicar- banate (HCO <sub>3</sub> )	TEK AT UIT	0,00	0.72	102	98	72	122	78	1.31	78	8t <sub>4</sub>	80	1.31	70	74 1.21	74	2.16
	Carban - B ate (CO <sub>3</sub> ) (t	臣	0000	000	0000	000	0000	0000	000	000	000	0000	0.0	000	00.00	0000	00.00	0000
Mineral	sium (K)	PEATHER	10		10	10	10	10	10	10	10		10	10	10	-10	1.6	0.05
	Sodium (NO)		3.0	3.4	0.20	5.0	5.6	5.3	6.5	5.8	5.8	6.2	7.6	8.5	5.6	0.27	5.6	5.1 2.00.22
	Magne- So sium (Mg)		3.4.	3.2	0.51	6.9	2.8	10 5.0	9 9 9 0	0.00	5.5	6.9	6.3	6.6	0.50	6.1 6.	0.38 0.38	0.85
	Calcium Mo		8.6	10	22	19	12	22	0.70	15	15	15	0.70	0.80	0.00	0.55	170 0.70	27
	Ha Ha		8.9	6.9	7.1	7.2	7.3	7.3	0.7	7.6	7.3	8.1	7.1	7-1	7.1	0.7	7.5	7.9
rific	canductance (micromhos at 25°C)		83.1	93.4	132	167	132	506	677	. ביות	977	152	150	172	133	136	135	236
Ū	Oissalved can axygen (mi																	
	Temp in of																	
	Discharge Temp in cfs in °F	Average	9820	51,30	2630	1750	091/1	11.90	830	700	099	950	800	912	01,10	2430	2820	2910
	Date and time sampled	1957	6/1-7	6/8-18	6/19-27	6/28-30	7/1-3	7/14	7/5-31	8/1-13	12-717/8	8/22-31	9/1-6	1/6	9/8-15	9/16-30	10/1-7	חנ-8∕01

o Iron (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{\overline{OO}}{0.00}$  except os shown. b Determined by addition of anolyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Loboratories.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Cansultont (PCC), Metrapolitan Water District (MWO), Las Angeles Dept. of Water & Power (LAOWP), City of Las Angeles Dept of Pub Health (LAOPH),
Long Beach Dept of Pub Health (LBOPH) or United States Bureou of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when nated with #

## ANALYSES OF SURFACE WATER TABLE B-14

ricol Consultant (DCCS), Metropolitan Water Datrice (Antimort Consultant Marie Consultant (DCCS), Metropolitan Consultant Consultant

CENTRAL VALLEY REGION

	Analyzed bye				0.003	Sixu	555.0	555	UoGi	0.003	13G.5	USGS	UsGS		
	bid - Coliform														
	Pid - bid - y	E dd u													
	Hardness as CaCO <sub>3</sub>	N C PPM		0	-1	0	9	0	0	4	_7	2	12	7	
				719	100	52	72	641	113	36	52	52	Ţή	077	
	Per- cent	£		17	6	17	13	7	13	16	7	15	7	15	
Total	Salved	in ppm		96	133	96	118	101	94	80	74	78	999	79	
		Other constituents		Fe 0.01	Fe 0.00	Fe 0.00	Fe 0.00	Fe 0.01							
	Silico	(2015)		15	21	91	15	91		12					
lion	5	(B)		0.00	0.01	000	0.01	0.0		0.0					
million	Flua-	(F)	,¹d)	0.0	0.0	0.0	0.00	000							
ports per million	į.	(NO <sub>3</sub> )	20) (con	0.0	0.5	0.0	0.00	1.3		1.7					
Q Ninge	Chla-	(CI)	(Sta.	3.5	3.8	6.1	0.31	5.7		3.7					
E E	- Ins	(504)	AT NICOLAUS	1°7	8.3	0.10	10.00	0.10		5.2					
stituents	Bicar-	(HCO <sub>3</sub> )		03	121	1.08	80	79	58	39	0.93	1900	35	144	
Mineral canstituents	Carban-	(CO <sub>3</sub> )	FEATHER RIVER	00.00	00.00	00.00	00.0	00.00	0000	0000	0.0	000	0000	0000	
M.	Potos-	(K)	A STA	1.5	1.8	1.1	0.01	1.6		0.03					
	Sodium			0.21	0.21	5.0	5.0	0.21	0.20	3.2	3.7	14.2 0.18	2.9	0.14	
	Magne-	(Mg)		5.0	9.6	0.40	6.6	6.0	1.4	3.5	6.0	7.0	7.0	0.36	
	Colcium	(Ca)		11 0.55	24	13	0.90	16	0.50	8.7	0.55	12	7.6	14°0	
	H	<b>6</b> 4		7.2	7.4	7.2	7.4	7.1	7.1	7.1	6.9	6.7	6.9	6.7	
	canductance (micromhas	01 25 C)		119	215	134	170	157	יזרו	93.5	111	120	80.7	9.56	
		%Sat													
	Dissalved	mdd													
	Temp in of														
	Discharge Temp in cfs in <sup>0</sup> F		Average Mean	14,70	3520	ή190	3560	3200	3000	0017	3760	η560	006,71	9520	
	and time		1957	10/15-17	10/18-24	10/25-38	10/29-31	11/1-11	21/11	11/16-17	11/18-30	12/1-17	12/13-19 d	12/20-31	

a tran (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{0.00}{0.00}$  except as shawn.

b Determined by addition of analyzed constituents c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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Lang Beach Dept of Pub Health (LBOPH) or United States Bureou of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated f Field pH except when noted with #

	Anolyzed by e			uses	uses	0.000	USGS	nses	0.56.5	uses	S 9SD	uses	SOSO	S DSN	US GS
7	MPN/ml												.9 Median 6.2	Max. 7,000	Min. 0.62
T or	Pid - mgd u			-	2	10	<b>オ</b>	2		-	7	-	6.	5	12
	Hordness os CoCO <sub>3</sub> Totol N C			0	0	0	0	0		0	0	0	0	2	0
		Eda		53	3	12	35	31		149	45	84	47	50	32
Per	sod -			16	18	16	16	15		18	18	19	17	17	18
Total	solved solids in ppm	٩						51	. 1			80			
	Other constituents							Po <sub>1</sub> 0.00 e	0°0 uz 10°0 no			PO4 0.05 &			
	Silico (SiO <sub>2</sub> )							11				16			
II:0n	Baron (B)			0.02	0.02	0.05	0.00	0.00		0.11	0.01	0.00	0.14	00.00	00.00
militon per militon	Fluo- ride (F)		গ্র					0000				0.0			
0	rote (ND)	-	əl .					0.00				0.00			
ports p	Chlo- ride	+-	OROVILLE (STA	1.6	0.06	0.00	0.0	0.01		1.3	1.7	0.05	1.6	0.03	0.06
	1 9 7		1		I	1		0.06		1		2.9		I	
nts C	Sul- fote		NEAR	ıolm	+110	1012				210	01101			- 6/2	610
constituents	Bicar- bonate (HCO.)		RIVER	75	1.05	35	0.79	99.0	·	1.10	62	1.13	1.13	59	99.0
i I	Corbon	is l	FEATHER F	000	0000	0.00	00.00	0000	broken	0.00	00.00	00.00	00.00	00.00	000
Minerol	Potos- (Sium		ल	1.1	0.02	0.0	0.7	2.6 0.6	bottle			0.04			·
	Sadium (No)			4.9	4.8	2.5	3.2 0.7	9:11	9	5.0	4.5	5.2	4.4 0.19	4.9 0.21	3.2
				~   o   ~   c		0.22 0	2.7	2.9	Sample	10	- 0	1.9	70	0	,  0
	Mogne- sium (Ma)			5.7	ا							10			
	Calcium (Co)			0,60	0.55	6.4 0.32	9.5	7.6				16			
	H			7.9	7.5	200	7.	7.3	7.5	7.9	7.9	7.8	8.1	7.7	7.3
Specific	canductonce (micromhas			122	110	63.4.	78.7	74.3		113	104	116	911	103	77.9
	1 2	000		102	108	120	102	101	100	100	100	96	66	100	103
	Dissolved axygen			14.2	13.4 108	12.5	11.4	10.4	6.6	9.1	9.3	9.2	10.5	11.5	12.7
		-		35 1	45 1	1 42 1	51 1	58 1	61	69	67	99	56 1	h9 1	<u></u>
	Dischorge Temp			3030	3600	13,200 1	5280	01/19	4850 6	2600 6	2450	2860 6	3250	2980 1	7630 1
	Date and time sompled		1957	1/10	2/13 1600	3/12 1230	14/8	5/7 0830	6/11 0720	7/8 1300	8/12 1350	9/16	10/22	11/12 1340	12/20

a Iran (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as and except as ehawn.

b Determined by addition of analyzed constituents.

c Grovimetric determination.

d Annual median and range, respectively. Calculated fram analyses af duplicate manthly samples made by Calif. Dept. of Public Health, Divisian af Labaretes.

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f Field pH except when noted with a

of Water Resources (OWEN, Do Indicated Water District (NWD), Las Angeles Dept of Water & Power (LADWE), City of Los Angeles Dept of Pub Heart (LADPES)

	Analyzed by 8					USGS	USGS	USCS	USGS	USGS	nses	USGS	nscs		
	Coliform MPN/mi		-									Median 136	Max. 7,000	Min. 0.23	
	Tor- bid- ity mpgm					12	2	#	0.8	8.0	20	20	54		
	N CO3					0	0	0	0	0	0	0	-		
						38	36	84	84	112	46	99	52		
	Per sod t					19	18	18	22	23	22	20	8		
	Solved Solved Solids in ppm						89				163				
	Other constituents						Fe 0.15 Al 0.17 PO4 0.05				PU <sub>lt</sub> 0.20 .				
	(\$10°2)	ক্ত					22				32				
c	Boron (B)	170				0000	90.0	0.03	0.27	0.08	00.00	0.03	00.00		
parts per million	Fluo-Bore	MILLE (STA					0.01				0.00				
1 -	1	MILL					0.000.01				0.010.00				
por	Chia- ride trate (CI) (NO <sub>3</sub> )	NEAR CRESCENT				0.00	0.5	1.8	0.08	7.0	6.0	3.5	1.0		
ڌ	Sul - fote (SO <sub>0</sub> )	EAR					3.8				7.7				
constituents	Bicor- banate (HCO <sub>3</sub> )	CREEK				56 0.92	- £ 6	1.10	122	154	2,21	93	1,02		$\dashv$
	Corban-	INDIAN				000	0000	00.00	0.00	0.00	00.0	0000	00.0		
Mineral	Potos- C srum (K)					0.03	0.8	1.1			2.2				
	Sodium (No)					1° 10° 0° 13° 0°	3.8	5.1	0.48	15	0.57	7.7	6.0		$\dashv$
	-9 E (0					3.2	2.8	3.2		10	9.9	1		<u> </u>	-
	Mogne- sium (Mg)						0								
	Caicium (Ca)					0.50	9.8	140			1.40				
	I M					90.8 7.3	7.2	7.1	6.8	6.7	6.8	7.1	7.3		
	Specific conductance (micrombas at 25°C)					90°	85.5	114	206	270	2μ1	167	118		
						89	98	+8	26	75	\$	82	81		
	Oissolved oxygen ppm %So		pu	pu	pu	10.5	8.6	<b>∄</b> ⊗	7.2	7.6	8.3	9.1	9.7	p	
	1		Snowbound	Snowbound	Snowbound		64	09	69	59	62	52	34	Snowbound	
	Dischorge Temp in cfs in of		Snb	Snb	Sno	466	798	305	31	39	24	125	528	ous .	
	Date and time sampled	1957	Jan.	Feb.	Mar.	4/11	5/9	6/13 0825	7/11	8/15 0915	9/19 0945	10/25	11/11	Dec.	

a tron (Fa), atuminum (At), areanc (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{a + c}$  except as shown. D Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples monthly samples monthly samples monthly samples monthly clips of Public Health, (Daboratories, a Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Caneutrant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USDS), Pacific Chemical Caneutrant of Water Resources (DWR), as indicated f Field pH except when noted with a

d Annul median and range, respectively. Colculated from analysis of duplicate monthly complex mode by Calif. Dept. of Public Health, Division of Loboratories.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

SUHFACE WATER

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ANALYSES OF SURFACE WATER TABLE B-14

		Anolyzed by a			USGS	USGS	USGS	USGS	पडिटर	ascs	USGS	णडल्ड	USGS	USGS	USGS	USGS	
		Coliform MPN/mi								_							
		- bid ity in ppm			R	x	17	35	3	2	옭	50	22	9	5	7	
Ì			S E S		61	95	140	无	28	23	Ħ	25	100	25	83	39	
			pp.m		258	240	365	112	%	85	74	105	96	8	331	298	
		- pos	_		R	<del>1</del> 5	S.	3	<b>F</b> 5	35	돠	22	22	2	Ŧ	8	
	Total	Solved solids	م						210				266				
		Other constituents							19 41 0.20 % 0.17			P01, 0-15 A	7. 0.04 A1				
		Silico (SiO <sub>3</sub> )			-								<u>a</u>				
	Fion	Boron (B)		100	1.9	1.2	2.0	0.21	0.200	0.28	0.12	0.29	0.50.29	0.83	2.2	2.5	 ehawa.
	Ē	Flue-	<u>E</u>										,0				pt de
	ē	Ni- trote		8					1.4				0.01				O exce
REGION	ports p	Chlo-	1	R BRENTWOOD (STA.	145	174	2 <sup>4</sup> 2 6.82	1.55	1-30	1.35	30	88 2.48	2.31	3.05	158	152	(Zn), and chromium (Cr), reparted here as $\frac{0.0}{0.00}$ except as shawn.
ALLE	Ē	Sul -	(804)	H NEAR					36.75				26				repor
CENTRAL VALLEY	constituents	Bicor- bonate		SLOUGH	3.93	2.90	274 4.49	34 65	1.34	76	8/3	1.59	25.	152	£ 6.	308	ium (Cr),
CENT		Carban - B	$\neg$	INDIAN	000	000	000	0000	000	000	0000	000	0.00	000	0000	0.13	 e chrom
	Mineral	Palas- C	<u> </u>		2°4 0°06	2.6	3.6	2.1	1.8	2.0		<u> </u>	3.2		•	•	 (Zn), or
		Sodium P			122 5•31	130	7.4	35	1.13	78	1.04	59	2.56	2 4 5	127	139	, zinc
		Magne- So.			2 47 5	2.35 5.	3.61 7.	1304	9.7	8.5	14	2	0.97 2.	m	- I'V	247	ese (Mn)
		E -	<u> </u>					-									angan
		Colcium (Co)			5 <sup>tt</sup> 2.69	2.45	3.69	1.20	1.10	88			13				Рb), п
		Ę	4		8.1	7.5	0.8	7.3	7.3	7.3	7.7	7.5	7.5	7.5	8.3	8.1	 ) poet
	o i di a a a	conductance (micromhos			1060	1050	1460	103	350	333	592	505	1483	692	1180	1170	pper (Cu),
		lved	% Sat		98	8	96	<b>6</b>	78	75	85	96	87	83	89	89	const
		Dissolved	mdd		9.6	<b>†</b> °6	0.01	7.8	7.1	6.5	6.9	7.9	7.3	8.3	9.5	9.7	inic (A
		e o e			51	57	22	63	89	え	&	79	77	19	55	53	), ores
		Discharge Temp			NOT												oluminum (Al
		Dote ond time sompled		1957	1/15	2/14	3/12	1,476	5/8 1400	6/18 1045	7/15	8/20	9/11	10/23	11/26	12/12	o Iron (Fe), oluminum (Al), oreenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc D Defermined by addition of analyzed constituents.

o Iron (Fe), oluminum (AI), oreenic (Ae), copper (Cu), teod (Pb), manganese ( b Determined by addition of analyzed constituents. c Gravimetric determination.

f Field pH except when noted with a

determy or Store Department of Works Designation Courts on Indicated March District (MWD), Los Angeles Dept of Worst & Poses (LADWIT), City of Los Angeles Dest of Fub Health (LADRIN).

٦		0														
		Analyzed by e		USGS	USGS	USGS	USGS	SOSO	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
		Coliform MPN/mi											Median 230	Max. 7,000	Min. 13	
	1	- pid - pid - pid - pid		8	20	17	走	20	8	25	20	6	16	7	6	
		CO3 PPT		83	87	69	55	z	23	u	2 <sup>tt</sup>	22	42	75	23	
		Hardi os Co Totol ppm		171	138	164	120	89	79	99	8	91	121	66	107	
-	2	Ent.		9	52	Ľ.	42	38	⋾	3	53	20	51	52	64	_
	Tatol	bis- salved solids in ppm						188				227				
		Other canstituents						0-13 Za				Pou 0.15 a				
		(Silico (SiO <sub>2</sub> )			- 00	<b>N</b>	-51	22	-01	-01		12	- (6)	- 64	est	
	million	Baran (B)	ত্ৰ	0.30	0.39	0.29	0.17	0.09	0.30	0.00	0.1	0.19	0.26	0.1	0.12	
1	Der 3	Fluo- ride (F)	100	·	·			0.01		·		0.02				
	i		TH (ST					1.8				1.4				
	equivolents	Chla-ride (CI)	EAR MOUTH (STA	3.27	3.95	3.36	1.80	1,16	1.24	0.62	2.09	1.75	2,40	2.06	2.23	
	Ē	Sul - fote (SO <sub>4</sub> )	SLOUGH		•			0.62				0.54				
	constituents	Bicor- bonate (HCD <sub>3</sub> )		107	126	1.90	1.29	1.16	1.11	1.10	1.33	1.38	1.57	1.29	102	
	Mineral cons	Carbon - E	ITALIAN	000	0.00	0000	000	000	000	0000	000	000	0 00	0000	000	
	N.	Potas- etum (X)		2.9	2.8	3.4	2.1	1.9	2.2			2.8				
		Sadium (Na)		3.22	981.	243	34	1,13	22	18	2.00	1.91	2.48	4,9	1,7	
		Mogne- S sium (Mg)		1.32	1.70	1.33 3	13011	9.4	7.7		10	11 0.92 1		10		
		Calcium M		42 2.10	2,10	39 1	1.30	2000	19 0.95			0,90				
-		I			7.3	7.5	7.3	7.3	7.3	7.3	7.7	7.7	7.1	7.3	7.1	
}		P P H		7.1	7	7	7	7.	7	7	-	7	7	7	7	-
	Sans	conductones (micromhos of 25°C)		723	833	718	6114	भूष	30.2	212	604	393	539	644	1489	
				82	8	98	78	2/9	82	87	89	79	17	8	78	
		Disse		9.3	9.5	8.7	7.5	7.0	7.0	7.3	7.4	6.7	7.0	80	9.0	
		Temp in OF		8	95	59	63	89	75	7	78	7	62	53	64	
		Discharge in c†s		Tidal Area												
		Dote ond time sampled	1957	1/15	2/14	3/12	1350	5/8	6/18	7/16	8/20	9/11	10/23	11/26	12/12	
-																

a Iron (Fe), aluminum (AI), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as 200 except as shown.

b Determined by addition of analyzed constituents c Gravimetric determination.

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f Field pH secept when noted with e

	Anolyzed by e		USGS	SD SM	USGS	usos	USGS	USGS	USGS	USGS	USGS	SSSD	USGS	USGS
	MPN/mi											Median 13	Max. 2,400	Min. 0.23
1	bid- hppd u		0.3	at 0	-	7	9.0	61	0.8	-	7	H	0	25
	Hurdness os CoCO <sub>3</sub> Tato! N C ppm ppm		0	0	0	0	0	0	0	0	0	0	0	0
			59	33	3	24	18	12	24	×	R	53	∄	22
	sod -		22	2ф	21	21	28	23	21	24	23	18	22	28
Totol	Solved solids in ppm						142				16			
	Other constituents					ć	2 E				Pot 0.00 A1 0.01			
	Silico (SiO <sub>2</sub> )		-oi	81 ·	ा		2	-01	린	-64	91		O)	01
million	Boron (B)	35	000	0.02	0.00	0.04	0.02	000	0.01	0.03	000	8	0.00	0000
per a	Fluo- ride (F)	STA					0.00				0000			
ě l	Ni- trate (NO <sub>S</sub> )	RIVERS (STA					0.01				000			
ports p	CMo- ride (Ci)	THREE RI	7.0	2.5	0.08	0.03	0.03	0.00	0.00	4.6 0.13	0.20	4.8	3.8	0.06
Ē	Sul - fote (SO <sub>e</sub> )	NEAR					3.8				3.8	-		
constituents	Bicor- bonote (HCO <sub>3</sub> )	RIVER	1.20	50°50°	0.72	0.51	25	0.30	29	5 8° 0	990-1	01.1	56	0.46
consti		KAWEAH F	0000	000	0000	000	0000	000	000	000	000	0000	000	0000
Mineral	Corbon- Ote (CO <sub>3</sub> )	KAV	1	1°4			1	-		l°		ľ	0	
	Potos-		4 0.04	10	1000	3 0.02	5 0.03	8 0.02	ole.	ede	4 2° 4 2 0°06	অঞ	∞]rv	- JI 80
	Sodium (Na)		0.34	5-1	4°4	2.9	3.5	0.08	2.9	5.3	7.4	5.6	5.8 0.25	3.8
	Magne- sium (Mg)		2.2	1.1	1.0	1.2	0.02	0.01			1.1			
	Colcium (Ca)		1,00	11 0.55	12	7.6	6.8	4.8			18	<del></del>		
	표 🛶		7.5	7.3	7.57	7.3	7-3	7-1	7.5	7-7	7.9	7.9	7.5	7.3
0.000	conductonce (micromhos of 25°C)			88.	90°2	59.1	6.64	34.5	57°4	7.76	137	130	901	8,49
	1 5		103 158	103	102	\$	66	101	80	92	66	105	86	98
	Dissolved oxygen ppm %Sc		13.3	11.4	10.9	10.5	10.9	10.6	ဆ ဆ	& & &	9.2	8.0	10.9	11.2
	Te mp		St.	52	7,5	51	52	56	R	₹	49	67	rz.	
	Dischorge in cfs		69	250	290	511	700	1450	335	74	141	82	133	920 49
	Date and time sampled	1957	1/9	2/19	3/19	5460	5/14 0810	0260	7/9	8/6 0815	9/25	10/15	11/20	12/17

a Iron (Fe), aluminum (A1), oreanic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Gr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

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SANALYSES OF SURFACE WATER

f Fleid pH except when noted with a

of account facility (EDDH) or Store Deportment of Worst Resources (DWN), on Indicated by Marce District (MWD). Los Angeles Dept of Woter Brower (LADWF), City of Los Angeles Dept of Fub Medity (LADPF)

	Anolyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	ases	nses	USGS	USGS	
	Coliform MPN/ml											Median 5.6	Max. 620	M1n. 0.06	
	bid - hid n		S.	2	10	15	~	6	#	-	24	0.0	0.0	55	
	Hardness os CoCOs Total N C		0	0	0	0	0	0	0	0	0	0	0	2	
			62	58	58	59	53	老	75	35	4	\$	09	92	
	Sod -		39	39	39	3	<u></u>	36	3	<i>5</i>	<b>=</b>	38	되	34	
Total	solids in ppm						114				109				
	Other constituents					4	Zn 0.03 % 0.02				Zn 0.01				
	S:1:00		<del>8</del>	1	67	N	13				216		m		
lion	Boron (B)	<del>M</del>	0.12	0.21	0.13	0.17	0.15	00-0	0.10	0.15	징	0-27	0.23	0.03	
ports per million volents per mil	1 570.						0.5 0.2				0.000.0				
ts per	1	S) Q					0.01				000				
ports p	Chlo- ride (CI)	MAKERSPIELD (STA.	14,1	0.28	0.28	9.0	9.8	3.8	5.0	6.0	0.28	14 0.39	14	12	
Ē	Sul - fote (SO <sub>4</sub> )	NEAR B					12 0.25				12 0.25				
constituents	Bicar- bonate (HCO <sub>3</sub> )	RIVER NO	22%	1.38	8th	% F	1.29	0.87	50	54	1.16	22.00	82	141	
	Corbon – E	KERN K	0000	000	000	0000	000	00.00	000	000	000	0.00	0.00	0000	
Minerol	Potos- C	30	2.3	2.3	2.2	2-2	2.0	2.0		1	2.2		,		
	Sodium (No)		19	18	18	17	0.74	2.5	9.2	- P	16	17 0.74	19	18	
	Mogne- Scium (Mg)		2.9	3.2	2.6	4.0 0.33	0.16	0.09	10	10	0.14	0	0	Ю	
		-	-										<del>-</del>		
	Colcium (Ca)		1.8	0.90	0.95	0.85	8 8	0.60			0.80				
	H 64		7.5	7.5	7.9	7.9	7.7	7.7	% 9.1	7.9	8.1	8.1	7.7	7.7	
	Specific conductonce (micromhos of 25°C)		10	7.	96	ř.	7	2	7	7	p	4	5	2	
	5		215	113	94 196	96 195	96 175	97 120	10	98 122	102 170	17 19	99 203	99 243	
	Dissolved oxygen ppm %Sot		001 6-11	10.9 101 194		9.3	# 6	9.1	8.9 104 105	8.3	8.8	9.8 107 197			
					10.8								10.4	10.7	
	ge Temp		<b>9</b>	75	9 52	6 63	3 62	99 0	8 75	5 76	0 74	2 68	3 56	0 27	
	Dischorge in cfs		234	427	664	949	723	1490	1338	815	320	245	223	380	
	Dote ond time sompled	1957	1/8	2/19 1345	3/20	1420	5/14	6/11	7/8	8/6 1 <sup>4</sup> 00	9/25	10/15 1545	11/20	12/17 1515	

a fron (Fe), oluminum (AI), areenic (Ae), copper (Cu), fead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{QO}{QOO}$  except as shown. B Determined by addition of analyzed constituents.

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	Analyzed by 6			USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	uses	USGS	nses
	MPN/mi												Median 9.6	Max. 2,400	Min. 0.045
	Pid-			0 8	-	m	ri	-	-	-	7	7	80	9.0	н
		S E		0	0	0	0	0	0	0	0	0	0	0	0
		Totol Ppm		£	55	53	53	44	27	33	<b>R</b>	36	<del>2</del>	rz -	4
	Sod -	_		帮	35	35	200	8	3	表	36	%	<b>%</b>	Ж	39
Total	Drs- solved solids	مة						96 -1				79			
	Other constituents							9.0 Pb 0.01 Zn 0.02				Fe 0.03 A1 0.03 PO <sub>14</sub> 0.30 G			
	on Silico			8	41°0	2	2		10°0	90.0	40°0	0.03	0.19	0.13	킹
noillion	Boron (B)		36a	00 0	ं	0.12	0.20	3 0.12	0	0	3	0 0	o	ं	0.04
ports per million volents per mil	J.F.		(STA.					0.02				0.01			
orts pe	Ni trote	(ND3)	) HVQ					0000				2.6			
ports p	Chlo- ride	(CI)	ISABELLA	5.0	5.5	5.5	6.0	5.5	0.00	3.6	3.6	4.1 0.12	5.5	6.0	0.21
=	Sul -	(80%)		·				8.1				3.8			•
constituents	Bicor - bonofe		RIVER BELOW	1.31	1.38	1.3	98 1-41	2 R	02.0	141	±6 0•75	57	70	1.20	1.23
	Corbon-	(CO3)	KERN RI	00.0	000	00.00	0000	0000	0000	0000	0000	00.0	0000	0000	000
Mineral		3	힐	1.9	0.05	2.0	2.4	1.8	2.0			1.9			
	Sodium (NO)			12	14	10,0	16	14	8.7	7.8	8.1	9 3	12	13	14 0.61
	Mogne- S			0.14 0.	3.6	0.16	3.2	0.09	0.00	``]o`_		0.13			lo
	Colcium M			0.80	0.80	0.90	16	0.85	0-47			0.60			
	1 3°	4,1		7.4	4.7	7.7	7.6	7.7	7.3	7.1	7.24	7.2	7.4	7.4	7.8
	conductonce (micromhos of 25°C)			150 7	165 7	170 7	170 7	159 7	92.8 7	88.2 7	94.7 7	119 7	- t <del>t</del> 1	153 7	160 7
		%Sot		82	8	6	95	80	001	78	3	88		84	88
	Dissolved	ppm o		9.8	10.8	1.0	0.0	0.6	9.7 100	8.1	7.0	7.8	65 10.5 110	9.2	
	Te and of a second			3	52 10	57 10.1	56 10	65	63	22	69	69	65 10	53	47 10.5
	Dischorge Te			9	en .		059	115	1160	1007	앜	7	9	200	100
	Dote ond time sompled		1957	1/17	2/16 1230	3/17	1530	5/13	6 <b>/1</b> 9 0930	7/16 0960	8/15	9/16	10/16	11,719	12/16

a Iron (Fe), aluminum (AI), oresnic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

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ANALYSES, OF

e Plate of accept when noted with a State Deportment of Worler Recourses (DWH), as indicated blate (NWD), Las Angeles Dept of Woter & Power (LADWP), City of Lie Angeles Dept of Power (LADWP), City of Lie Angeles Dept of Pub Health (i ADPH).

		Anolyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	nses	USGS	USGS	uses	uses	nses	
		Celiform MPN/mi											Median 4.3	Маж. 2,400	Min. 0.13	
		- piq III bid		ħ•0	Н	Н		-	-	0	2	0.5	0.1	0.3	7	
		Hardness as CaCO <sub>S</sub> Tatal N C ppm ppm		0	0	0	0	0	0	0	0	0	0	0	0	
		- 1		145	h	37	31	214	12	24	30	36	1,1	84	148	
-	ď	sod -		33	91	542	38	38	38	_ 3_	947	941	143	710	39	
	Toto	Solved solved in ppm						5 57				97				
		Other canstituents						A1 0.02 cu 0.05 PO <sub>11</sub> 0.00 Fe 0.0 Zn 0.02 C				Zn 0.02 Fe 0.01				
		Silica (SiO <sub>2</sub> )		~1				和				13				
	Ilion	Beran (B)	360	0.13	0.13	0.20	0.12	0.08	0.09	0.06	0.10	0.12	0.13	0.13	0.11	
a di li	valents per million	Fluo- ride (F)	1			·	•	0.2				0.01			,	
0	5	rrate (NO <sub>3</sub> )	E (S					0.00 0.01				0.00	_			
100	equivalents	Chio- ride (Ci)	KERNVILLE (STA.	6.0	4.5 0.13	5.0	3.5	0.06	0.0	3.2	5.6	7.8	6.7	8.0	5.5	
	ē	Sul - fate (SO <sub>4</sub> )	NEAR				-	14.2		<u> </u>		9.6		· ·		
		Bicar S banate ( (HCO <sub>3</sub> ) (9	RIVER	76	99	61	46	38	19	30	51	0980	1.08	68	72	
	constituents	90 - Bic	KERN R	0.00	0.00	0.00	0 00 0	0 00 0	0000	0 00 0	0 00 0	0 00 0	0.00	0.00	0.00	
	Mineral	- Corban- ate (CO <sub>9</sub> )	<u>Z</u> I			1	- 1	- 1	- 1	0	0	1	0	0	0	
		Polos- sium (K)		0.0	0.0	1 0.0	0.03	0.02	0.01	<del></del>		0.05				
		Sodium (No)		14	13	0.65	8.9	7.0	3.4	6.5	12	15	0.61	15	14	
		Megne- sium (Mg)		1.8	2.1	1.7	2.2	0.04	0.01			1.5				
		Catcium (Ca)		15	13	12	8.8	8.8	4.5			12				
-		E W		7.4	7.6	7.5	. 6	,6,	16	7.3.	7.14	7.6	\$ 100	*==	7.8*	
-	1,10	(micromhos of 25°C)		154	135 /	128	10	85.0 7	41.3 6	68.2 7	116			4 7		
-	Spec	1 6					101					141	146	154	146	
		asygen ppm %Sat		. 4 85	9 101	98 2	7 90	•5 86	0 100	.7 95	2 89	14 85	5.	98 2	06 1	
-				7	11.9	10.7	6.6	6	10.0	æ .	φ.	4.8	6	10.7	11.4	
-		E C		3 38	2 147	5 43	5 54	4 52	2 60	0 68	0 68	8 61	- 2	0 43	8 42	
		Discharge Temp		213	395	365	555	794	1882	960	200	158	195	220	378	
		bete cond time sempled	1957	1/17	2/16 11 <sup>1</sup> 45	3/17	4/11 1500	5/13	0060	7/16	8/15 1030	9/16 0845	10/16	11/19	12/16 0955	

a iron (Fe), aluminum (Ai), oreanc (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. E Gravimetric determination.

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		Anolyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	nses	USGS	
		Caliform d MPN/mi											Median 6.2	0.9 Max. 230.	Min. 0.06	
	Į.	- bid - to po		-	0.8	2	~	~	#	7	2	2	0.1		ካ•0	
		Hardness as CaCO <sub>3</sub> Total N.C.		0	0	0	0	0	<b>¬</b>	7	0	0		- 2	0	
				20	16	14	6	7	10	10	∞	20	25	25	18	
	Q	cent cent cont rum		28	23	39	32	30	28	30	30	28	25	25	31	
	Total	Das- salved solids in ppm						20				∄				
		Other constituents					A10.08 Gm <sup>+6</sup> 0.01					PO <sub>14</sub> 0.05				
		(Silica (SiO <sub>2</sub> )			01			8.4				9.6		011		
	Hian	Boron (B)	330)	0.01	0 0	70.0	00.00	0.3 0.00	00.00	0.01	0.00	0.0 0.01	00.00	0.02	0 00	
	parts per millian valents per millian	Fluo- ride (F)						0.00 0.02				0.00				
	ě l		FORK (STA.					00.2				2.1	-			
CENTRAL VALLET REGION	parts p	Chla- ride (CI)	NORTH FOR	2.5	0.5	2.0	0.01	0.01	00.0	1.8	0.08	3.6	3.8	2.2	3.4	
127	<u> </u>	Sul - fate (SO4)	BELOW			•		0000		<u> </u>		2.9				
L VAL		Bicar S bonate (HCO <sub>3</sub> )		0.44	0.36	19	0.25	12 0.20 C	0.11	10	12	26	28	24 0.39	25	
INTHA	canstituents	n-Bic Bor (HC	S RIVER		000	0	0	<u>  0</u>		0	000	0	000	0	o	
ວັ	Mineral	Carban- ate (CO <sub>3</sub> )	KINGS	00.00	00.00	0000	0000	00.00	00.00	00.00	0000	00.00	00.00	00.00	0000	
	Ē	Patas-		0.02	0.02	0.02	0.5	0.01	0.02			3.5				
		Sadium (Na)		3.7	2.2	4.3 0.19	2.0	1.6	0.08	1.9	1.5	3.8	3.8	3.9	14.0	
		Mogne- S.		1		0.00	0.02			10		9.0		10	10	
		M E		10		10		0.01	10			10		<del></del>		
		Caterium (Ca)		6.8		5.6	3.2	2.9	2.4			7.0				
		# H W		7.0	6.9	47.6 7.1	30.3 7.0	9.9	17.6 6.6	26.7 6.7	7.2	7.5	7.2	1 7.0	7.3	
		conductance (micromhas		61,2	1941	h)°(h	30	25.6	17.6	26.7	23.6	62.7	68.0	55° 4	59.0	
	- "	1 6		33	90	86	68	82	92	77	26	93			83	
		Oxygen oxygen ppm %Sc		13.4 103	11.8 106	0.7	10.9	9-11-8	±•6	7.1 7	6.4	0.8	6.8	10.4 101	10.5	
													ω			
		Discharge Temp		357 40	34 52	76 53	1710 44	30 52	7310 59	1770 68	4585 60	220 74	180	383 58	307 42	
		DISCHO IN C		С.	1034	1076	17	3130	73	17	45	2	7	6	m	
		Date and time sampled	1957	1/17	2/12	3/11	4/19 1400	5/16	6/14 1100	7/12	8/6 1 <sup>4</sup> 20	9/13	10/8 1400	11/13	12/9	

a iran (Fe), aluminum (AI), areenic (Aa), capper (Cu), lead (Pb), manganeae (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{600}$  except as enawn. D Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculated fram analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of State Department of Water Resources (DWR), as indicated

SUICE ACE WALFIE

f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-14 CENTRAL VALLEY REGION

	71	1												
	Analyzed by e		USGS	nses	uses	USGS	0.565	nses	USGS	USGS	uses	USGS	USGS	usgs
	Coliform d MPN/mi											Median 23	Мах.	Min. 1.3
1	- pid Att		0.7	-	#	9	2	#	-	2	7	ω. 0	20	2
	N COS		0	0	0	-	0	0	0	0	0	0	0	0
	Hardness as CaCO <sub>3</sub> Total N.C.		42	68	22	32	38	12	16	13	16	09	<b>1</b> 80	63
6	sod -		24	29	23	23	27	28	24	28	22	26	28	29
Total	solved solids in ppm						69				36			
	Other constituents					6 0 0	Pot 0.01 Zn 0.04	1		y C	Zn 0.02 Al 0.03			
	Silica (SiO <sub>2</sub> )						2				12			
illian	Boron (B)	7	0000	†0°0	0.00	70.0	0.03	0.00	00.00	0.00	0.03	0.07	0.03	0.00
million per millian	Flug- ride (F)	STA					0.2				0.00			
1 2	Nr- trate (NO <sub>3</sub> )	WEIR					1.2				0.0 0.0			
parts pe	Chlo- rde (CI)	PEOPLES	2.0	11 0.31	1.8	2.0	0.08	0.0	0.0	0.7	1.5	3.4	7.5	5.5
Ē	Sul - fate (SO <sub>4</sub> )	BELOW	1				3.6				2.9		•	
constituents	Bicor- bonate (HCO <sub>3</sub> )	R IVER B	37	1.62	28	38	58	16.0	19	16.0	0.33	1.38	1.90	1.49
al const	Carbon - B	KINGS R	0000	0000	0.00	0.00	00.00	0.00	000	0 00 0	0.00	0000	0.00	0000
Mineral	Potas - Ca Stum (K)		0.02	2.0	1.0	1.1	1.4	0.02			1.1	10	10	
	Sadium P(Na)		0.18	13 0.57 0	3.2	4.5	6.29	2.4	2.4	2.3	2.4 0.10	9.6	15	12
	Magne- Sai		2.2 4 0.18 0.	6.2	0.10 0.	3.2 4	2.6 6	0.00	``\o	10	0.05	~10°	lo	lo
	M (E													
-	Calcium (Ca)		1 7.2 0.36	3 0.85	2 6.8	0.38	اة	1 4.9	٦.	0	6.9 5.4	7.5	5.	7.3
	H €	1	7.1	7.3	7.2	3 7-3	7.3	7.1	7.1	6.9	9	7.	7.	7.
2000	(micromhos		74.4	161	60.5	80.3	110	40.3	40.7	36.5	42	159	222	179
			गुर्ठ	96	101	80	93	96	100	93	176	92	85	88
	Dissolved axygen ppm %So		11.3	9.7	10.9	φ 0	9.1	9.0	9.8	9.0	8.6	8.5	8-7	9.2
	Te ap		 34	59		09	62	99	62	63	68	49	58	57
	Discharge Temp		368	137	670 5 <sup>th</sup>	172	191	1445	1955	1375	985	120	95	123
	Date and trae sompled	1957	1/9	2/19 0825	3/20 1045	4/10 0920	5/15 0825	0800	7/9	877 0852	9/25	10/15	11/20	12/17

a Iran (Fe), aluminum (Al), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 200 except as ehawn. b Determined by addition of analyzed constituents

c Gravimetric determination,

d Annual median and range, respectively Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water (LADWP), City of Lae Angeles Dept. of Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated field pH escept when noted with a

		Analyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS		USGS	USGS	USGS	uses	
		MPN/mi											0.4 Median 2.3	Max. 7,000	Min. 0.06	
	7n/	bid – Ity In ppm		0 0.5	0 0.8	0 1	0	0 1	0 7	0 1		0 5	₩°0 0	η•0 t <sub>1</sub>	0.3	
		Hordness os CoCO <sub>3</sub> Total N C							<u>.</u>						0	_
-				18 14	29 15	21 18	26 13	26 14	25 9	33 10		32 9	22   12	9 19	24 12	
-	Per	ed sod –			- 5	- 2	- 5	28 2	2	<u></u>		21 3	- 5	19	2	
-	ية اعر	solved solids in ppm														
		Other constituents					49 00 04	Po <sub>t</sub> o	đ			PO <sub>14</sub> 0.20 a.				
		Silica (SiO <sub>2</sub> )			-			5.8				14.7				
_	millian	Baran (B)	339	0.00	0.00	0.13	00.00	0.01	00.00	0.0		0.03	0.03	0.04	00.00	
million	m jad	Flua- ride (F)	(STA					0.3 0.2				0000				
parts per	1 1	trate (NO <sub>3</sub> )	DAM					0.00				1.2				
Dd	equivolents	Chlo- ride (CI)	PINE FLAT	0.02	1.3	1.2	0.01	0.2	0.0	1.1	-	1.6	0.02	1.0	2.0	
	=	Sul - fote (SD4)	BELOW					2.5				1.0				
	constituents	Bicar- bonata (HCO <sub>3</sub> )	RIVER E	19	20	26	21	21 0.34	14	16		13	16	18	0.28	
	- 1	Carbon - B		0000	0.00	0000	0000	0000	0000	0000		00.00	0000	0000	0000	
	MINBRO	Potos- Co sum (K)	KINGS	0.02	0.02	0.02	0.02	1.1	0.02			0.02			<b>'</b>	_
		Sadium (No)		1.6	3.1	0.10	2.2	2.5	1.7	2.4 0.10		2.0	1.7	2.0	1.8	
		Mogne- S		0.07	0.06	0.07	0.00	0.03	0.00			0.01			1	
		Colcium (Co)		4.4	4.8 0.24	5.8	5.2	5.0	3.8			3.2				
		*			6.9	7.1	7.5	7.2	6.7	6.9			7.0	6.9	7.3	
	Specific	(micromhas at 25°C)		37.4.6.9	145.5	8.84	43.5	1,3.6	28.8	32.1 6.9		26.9 7.2	94.5 7.0	39.1	37.9	
		70		96	112	101	66	87	92	6		85	90	115	80	
				η•11	11.8	10.7	11.1	т.е	8.9	9.2	+	7.8	8.6	11.0	9.3	
		re Temp		202 46	95	96	51	1 <sub>5</sub> <sup>1</sup> t	63	58	No report	89	t <sub>19</sub>	ħ9	148	
		Discharge Temp in cts in aF		202	156	1380	1000	1400	5850	6750	No	1460	232	39	134	
	í	Date and time sampled	1957	1/17	2/12	3/11	4/19 1600	5/16	6/14	7/12 1400	Aug.	9/13	10/8	11/13	12/9	

a iran (Fe), aluminum (AI), oreenic (Az), capper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{0.00}$  except as shown. C Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labartes.

8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWD), Los Angeles Dept. of Water (LADWP), City of Las Angeles Dept. of State Oppartment of Water Resources (DWR), as indicated \* Field pH except when nated with-

ANALYSES OF SURFACE WATER TABLE 8-14 CENTRAL VALLEY REGION

	Anplyzed by e		USGS	USGS	uses	USGS	USGS	USGS	USGS	USGS	usgs	USGS	USGS	USGS
	Coliform d MPN/mi											Median 230	Max. 7,000	Min. 2.3
	- Piq		55	01	<del>1</del> 8	25	7	69	150	30	31	10	η 0 ή	30
	CO3 PPS		0	0	⇉	-	0	0	0	0	0	0	0	0
	Hordr as Co Tatol ppm		72	94	98	99	59	69	89	70	70	73	09	62
d	sod -		31	28	33	27	36	31	31	32	36	34	27	28
Totat	Splved solids in ppm			134			128				141			
	Other constituents	,		Fe 0.17		5	Fe 0.12 Zn 0.01				PO <sub>4</sub> 0.25 E			
	Sitico (SiO <sub>2</sub> )			12			13				24			
101	Baran (B)	ିର	0.13	0.07	0.18	10°0	0.36	0.17	0.00	0.08	0.15	0.17	0.06	0.01
ports per million volents per million	Flup- ride (F)	91		0.01			0.01				0.03			
1 40		VISTA (STA.								<u>-</u>				
ports p	rote (NO <sub>3</sub> )	STA		1.1			0.0				0.0			
e guy	Chip- ride (Ci)	RIO VI	9.0	0.31	16	0.21	10	0.28	9.1	0.31	0.34	0.37	R.0 0.23	8.5
_ <u>_</u>	Sut - fate (SD4)	NEAR		.31			0,10				0.31			
1			27/2	1.540	100	∝  ∞		38	39.85	- 06 - 148	245	212	282	99 1
canstifuents	Bicar – banate (HCO <sub>3</sub> )	SLOUGH	1.67		-	1.28	1.31	-	ابا		1	-	1	
Mineral co	Carban- ate (CO <sub>3</sub> )	LINDSEY	00.00	0.00	0.00	00.00	0.00	0.00	0.00	0.00	00.00	0.00	0.00	0,00
N E	Potos- sium (K)	긔	1.6	1.4	1.8	0.03	1.2	1.6			2.0			
	Sodium (No)		15	14	20	0.48	17 0.74	14	14	15	19	17 0.74	0.44	0.48
	Mogne- sium (Mg)		8. 4	9.4	12 0.97	20.65	7.3	7.9			0.80			
	Colcium N		0.75	15 0.75	15 0.75	13	14 0.70	13			0.60			
	H		7.5	ů,	7.7	<u>~</u>	5	7.	6.	7.	7.7	·.	.5	<u>~</u>
-				7			- 7			7		7	5	7
	conductonce (micromhas at 25°C)		209	206	253	172	183	196	191	198	217	217	165	168
	Dissplved axygen ppm %Sat		96	66	96	भेष	96	93	100	68	67	8	96	87
			11.2	11.4	10.5	<b>1</b> €	8	8.5	8.1	7.8	7.7	8.5	9.8	10.3
	Temp in of		∞ <del></del>	6+	53	20	† <sub>9</sub>	89	80	72	72	ħ9	53	4
	Dischorge Temp		Tidal											
	Date and time sampled	1957	1/16	2/15	3/22	4/17	5/6 0945	6/14 1010	7/15	8/21 1140	9/12 1450	10/2 <sup>4</sup> 1135	11/25 12 <sup>4</sup> 5	12/13

a Iron (Fe), aluminum (AI), preenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted hase as  $\frac{0.0}{0.00}$  except as ehawn. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Labartes.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City at Las Angeles Dept. of Pageles Dept. of Water Resources (DWR), as indicated f Field pH except when noted with a

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e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of State Department of Water Resources (DWR), as indicated

f Field ph except when noted with e ANALYSES OF SURIACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

	Anolyzed by 6		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	nses	
	Colitorm d MPN/mi											Median 230	Max. 7,000	Min. 0.23	
	Pid -		15	24	20	10	10	10	20	15	20	20	20	2	
	COS S COS S COS		24	33	25	<b>=</b>	ω	2	14	0	0	15	16	29	
	Hordness os CoCO <sub>S</sub> Totol N C ppm		75	416	89	941	95	33	82	75	99	74	25	80	
	sod -		33	31	27	25	28	28	34	34	33	56	31	29	
100	solids in ppm		140	166	118		101		-		130				
	Other constituents		Fe 0.03	Fe 0.00	Fe 0.14		Fe 0.02 Al 0.06 PO4 0.15 & Cu 0.01 Zn 0.04			6	Po <sub>ti</sub> 0.20 Fe 0.01 Al 0.02				
	Silico (\$10 <b>2</b> )		16	20	18		118				12				
lion	Baron (B)	N. 99	0.12	0.02	0.00	0.00	00.00	0.08	000	0.08	0.02	0.02	0.00	00 00	
nillion r mil	000	(ST			0.3										
ports per million	1	TERMINOUS (STA	6.5 0.2	2.3 0.2	2.9 0.3		0.010.01				1.6 0.0				
ports p	Chio- ride (Ci)	AT TERM	32 0.90	1.18	26	11	0.51	11 0.31	32	22	20 0.56 (	22	27	28	
		SLOUGH	11 0.23	0.27	9.6	- 1	5.8			<u> </u>	8.6		1		
nts in	Sul = 1016 (SO <sub>4</sub> )	1	62			r.J.		34	36	52		2/82	82	02	
constituents	Bicar- bonote (HCO <sub>3</sub> )	POTATO	7	٦-	0.87	0.84	0.95	o	-		1.36	1.18	0	<u> </u>	
Mineral co	Corban- ote (CO <sub>3</sub> )	LITTLE	0.00	00.00	0.00	00.00	0.00	00.00	0 00	0.00	0 00	0.00	0.00	0.00	
M	Potos- sium (K)	긔	1.3	1.4	1.3	1.1	1.2	0.02	ľ		2.0				
	Sodium (No)		17700.74	20	12	7.2	0.17	f.2 0.27	19	18	16	12 0.52	12	15	
	Mogne- sium (Mg)		8.4	0.89	8.0	3.9	5.6 0.46	3.4	····		8.0		· ·	•	
	Calcium (Co)		0.80	00.	14 0.70	0.60	13	0.38.0			0.70				
-	15 w		7.1	<u>.</u>	ď	w,	ů	-1	· ·	<u>.</u>	7.5	<u></u>		F	
	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			2	7	7	7	99.77.	7	7		7	7		
	Specific conductance (micromhos at 25°C)		234	282	196	131	164	6	256	230	215	201	182	230	
	gen %Sat		8	92	91	87	98	96	93	96	48	83	85	83	
	Disso		10.9	10.7	9.8	8.7	۳. 1.	8 5	7.8	8.3	7.4	٠ 0 •	9.3	9.6	
	Temp in OF		111	84	476	61	99	99	44	74	72	63	53	<u>್ಕ</u>	
	Discharge in cfs		Tidal Area												
	Dote ond time sompled	1957	1/11	2/13 1330	3/11 1345	4/15 1420	5/7	6/17 1220	7/16 1500	8/19 1420	9/10 1405	10/22	11/27 0815	12/11	

a Iran (Fe), aluminum (AI), areanc (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Ln), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shawn. Distermined by addition of analyzed constituents.

c Gravimetric determination.

ANALYSES OF SURFACE WATER B-14 TABLE

ands by Calif Dapter Public Mealth, Division of Laboratories (P.C.), Mealth of Marker District (Med.), I as Angeles Dant of Wyter m.

CENTRAL VALLEY REGION

		Analyzed by a					ις.		ις.	S	s,	s,	Ŋ	Ŋ					
-	-	A					USGS		USGS	USGS	USGS	USGS	usgs	n USC					 _
		bid - Coliform												Median USGS 1.36	Max.	470	M1n. 0.06		
	- T or	tty mpgm					7		2	7	2	-	∞	6					
		N N N					0		0	0	0	0	0	0					
							=======================================		34	54	143	41	37	38					
-	- Ber	d sod –					18		71 20	28	20	2ћ	92 24	21					
L	Toto	solids in ppm											6						
		uents						11.0	4				4						
		Other constituents						01 A1					04						
		Other						Fe 0.01	Zn 0.01 PO <sub>4</sub> 0.05				PO1 0.10						
		Silica (SiO <sub>2</sub> )							<del>26</del>				47						
	lion	Baran (B)	18				0.00		00.0 0.00	0.02	0.10	0.00	0.08	90.0					
millian	per million	Flua- ride (F)	STA.						0.00				0.00						
parts per millian	l 1	rrote (NO <sub>3</sub> )	LAKE				-		0.00 0.00				0.00 0.00						
par	equivolents		SHASTA				1.2	ي 	<del>-i-</del>	0,00	W #	2.3		26				·	
		Chia-					-1	0.03	0.02	3.0	1.5	2.3	0.05	3.2					
	٩	Sul - fate (SO <sub>4</sub> )	ABOVE						2-5				0.00						
	constituents	Bicar- bonate (HCO <sub>3</sub> )	RIVER				58	0.95	08.0	1.41	0.97	57	58	59					
- 1	I	Carbon - B						00.00	0.00	0.00	00.0	00.00	0000	00.00					$\dashv$
	Mineral	-s-	McCLOUD				1		<u>'</u>		- 0	- 0		<u> </u> °		_			
		Palos- Eura (X)					1.0	0 0	0.18 0.02	2.0	al a	0.00	5 0.05	wlo					
		Sadium (No)					ц.2	•0	0.1	0.43	5.1	6.0	5.7	4.6					
		Magne- sium (Mg)					3.2	0.26	0.18	5.1 0.42			3.6						
		Calcium (Ca)					7	54.0	0.50	13			8.8						
-		Ha &		·		<del>,</del>	7.5		7.5	7.4	7.5	7.6	8.1	7.5					 $\dashv$
	of	(micramhas at 25°C)					95.5		88.5		7 - 16								
	Spec	(micro								150		101	2 100	116 100					
		Dissalved oxygen ppm %Sat		p	pur	P L	2 99		₹ <del> </del>	46 h	0 93	10.7 107	2 102	11	4	pul			
-				Sndwbound	Snawbound	Snowbound	11.2		10.4	10.4	10.0		10.2	12.8	report	Snowbound			
-		ge Tem		S	S	Sn	10 50		40 52	30 56	10 et	50 60	10 60	00 52	No	S			-
		Dischorge Temp					1740		1740	1430	1140	1050	1010	1100					
			1057		•	•		9	rύο	200	9	23	0	<b>∞</b> ο					
		Date and time sompled	_ =	Jan.	Feb.	Mar.	14/8	7	5/15	6/18	7/16	8/13	9/11	10/8	Nov.	Dec.			

o Iran (Fe), aluminum (A1), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as and except as shown.

b Defermined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angeles Dept. of Water & Pawer (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

		_														
	Anolyzed by 6			USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	uses	USGS	USGS	
	Coliform d MPN/mi												Median 6.2	Max. 620	Min. 0.06	
	Tur- bid- ify In pom			9	2	7	9	7	2	-	2	2	ω	7	35	
	000 000	∪ Edd		-	0	3	~	0	0	2	0	0	0	ゴ	2	
	Hordr 08 Co	Totol		28	30	31	28	17	14	12	80	18	917	51	84	
	Per- cent sod -			15	17	中	15	20	21	20	30	20	11	14	17	
	Total Dis- solved solids	E 00						33				32				
	Other constituents						רט ס יט דא	Po F				Cutto.01 F. 0:10				
	Silico	2010				Total Total		0-6				7-7			-0	
00	6	2	324	0.00	0	0.03	0.0	000	0.00	0.01	0 0	0	0.0	0.0	0.0	
e l	Fluo- Bor	E	STA					0.01				0.01				
5	1	(NO 3)	R DAM					00.0			_	0.0000.01				
od	Chio- Ni-	(1)	EXCHEQUER	2.0	2.5	2.5	1.5	1.9	0.00	0.08	0.02	0.0	2.2	3.8	5.8	
.5	Sul -	(*)	BELOW					1.5	•			0.00				
constituents			RIVER BE	33	36	34	31	0.36	19	12	13	28	56 0.92	57	56	
- 1	20 €	(s)	- 1	0000	0000	0.00	0000	0000	0000	0 00 0	0.00	0.00	0000	0000	0000	
Minerol		(X)	MERCED	0.02	1.1	0.02	0.02	0.02	0.01	°_	10	1.0	0	-   0		
	Sodium Po			2.4	3.1	0.10	2.3	2.1	1.8	1.4	1.5	0.10	2.5	3.6	4.4 0.19	
	Mogne- So			0.13	1.8 0.15	$\frac{2.3}{0.19} \frac{2}{0.}$	0.14 0.	0.03	0.02	<u> </u>	0.0	1.1	0 0	<u>ീം</u>	<u> </u>	-
								- 10								
_	Coleium	2		10	0.46	10	1 8 t	9 6.2	1 5.5	6		9 5.4	-	<u></u>	-	
	H <sub>0</sub>	•		7.2	7.1		7.1	6.9	7.1	6.9	6.7	6.9	7.1	7.3	7.1	
	Specific conductonce (micromhos			68.7	76.3	70.0	66.3	47.5	41.3	29.1	24.3	52.2	100	115	119	
		%Sat		101	102	85	98	ħ6	86	46	3	80	78	75	η6	
	Diss	mad		11.5	11.7	6.6	2.6	10.1	7.6	6.4	٠ <u>.</u>	6.9	7.1	6.6	10.3	
	Temp In oF			50	641	148	52	54	61	58	09	74	89	96	53	
	Dischorge in cfs			38	37	994	1780	1620	2630	1900	1700	1230	142	34	38	
	Dote and time sampled		1957	1/9	2/20 1205	3/21 0750	4/10 1615	5/15	6/12	7/10	8/7	9/26	10/17	11/21	12/18 1240	

o fron (Fa), oluminum (Al), orsanic (Aa), copper (Cu), leod (Pb), mongonese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{90}{200}$  except as shown. C Graviment by oddition of analyzed constituents.

d Annual madian and range, respectively. Colculated from analyses of duplicate monthly samples made by Calif. Dept.of Public Health, Division of Laborates.

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OI SURIACI WALLE

f Field pH except when noted with a

the condition of the control of the ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

	Analyzed by e		usgs	USGS USGS	nses	uses	usgs	usgs	usgs	usgs	usgs	USGS	nses	nsgs	
-	A A		ñ	ň	Ď	5	<u></u>	Ď	'n	Ď.	Ď				
	Catiform MPN/ml											Median 62	Max. 7,000	Min. 2.3	
Tur	bid-		7	0 2	9 0	~	5	0 10	m	m	2	7	Н	2	
	2 CO 3	60	0			0	0		0	0	Ö	0	0	6	
	1.	Edd	8	77	<b>=</b>	55	64	17	† <sub>9</sub>	99	62	57	89	92	
0	a sod		th3	143	23	30	39	22	647	641	η -	04	<b>₫</b>	11	
Tato	salved solids in opm	٥					138				149				
	uents					c c					0.00				
	Other canstituents					α,	Po <sub>1</sub> 0.15			0	14 10 10 10 10 10 10 10 10 10 10 10 10 10				
	Other					5				c	Fe to 01				
	Silica (SiO <sub>2</sub> )						의				30				
ian	Baran S (B)	32)	00.00	0.00	0.12	0.05	0.01	0000	0000	00.00	0.01	0.24	0.02	00.00	
per millian	Fluo- ride (F)						0.01	31	-,		000				
	Ni- trote (NO.)	.					1.9				2.0				
parts pe		<del>                                     </del>		90 -	801	0 80		-10	2 2	106		4 7	16	8 1	
9	Chia-	0%	13	0.51	3.8	0.28	8.5	0.00	22 0.62	0.59	14 0.39	12 0.34	0.59	0.51	
Ē	Sul - fate (SO.)	NEA					0.10				9.6			·	
constituents	Bicor- banote (HCO.)	NI VE	132	124 2.03	0.87	82 1.34	1.29	24	102	1.74	1.62	92	138	124 2.03	
consti	e P G	MERCED	0000	0 00 0	0 0000	0.00	0.00	0 000	0.00	0.00	0.00	0.00	0.00	0.00	
Minerol	- Carbon- ate (CO.)	-		1			1	- 1	0	0	1	0	0	0	
2	Palos- sium (K)		2.2	2.2	0.03	0.04	0.05	0.01			2.2				
	Sadium (Na)		29	28	5-7	16	15	2.4	28	1.26	21	18	32	28	
	Magne-		7.3	7.2	3.9	0.40	2.8	0.04	Į.	,,	5.2		,	•	
	Colcium M		20	19 0.95	0.50	114	0.75	0.30			0.80				
		ы	7.5	7.5	7.4	7.5	r.	7-1 6	-1	7.5	7.5	7.5	7.7	7.3	
9	rance So C)		288 7	276 7.	104 7.	180 7	169 7	5147	2444	257 7	224 7	193 7	304 7	280 7	
Spec	conductance (micromhas at 25°C)		28	27	1(	16	7			2,	5	1	~	2	
	olved rgen		102	97	102	86	66	98	128	66	98	96	96	8	
		2	11.3	9.7	10.5	9.2	8.0	8.2	10.6	# · · · ·	7.9	8.9	9.5	9.5	
	e Te ap		52	09	58	99	68	19 (	78	3 76	68	2 67	56	9 55	
	Discharge Temp		156	155	670	233	566	2530	162	133	230	285	142	149	
	Date and time sampled	1067	1/9	2/20	3/20	14/10	5/15 1245	6/10 1045	7/10	1320	9/26	10/14 0511	11/2 <b>1</b> 0930	12/16	
	s and		- 77	17,	23	7 A	201	9 1	7	∞ H	60		0		

a iran (Fe), aluminum (AI), aresnic (As), capper (Cu), isad (Pb), manganesé (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{QQQ}$  except as shown. b Determined by addition of analyzed constituents.

Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate marthly eamples made by Calif. Dept of Public Health, Division of Lobarotaries.

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		Analysed by 6		nsgs	nsgs	USGS	USGS	USGS	USGS	nsgs	nsgs	SSSO	USGS	USGS	u s <b>c</b> s
-	,	77													
-		bid - Caliform		9*0					<b>1</b> .6		8.0			ਜ•0	
-	Ē		-	0	17	0	0	3	5	7	22 (	~	6	10	<del>~~~</del>
		Hardness as CaCO <sub>3</sub> Tatal N C PPm PPm		45	96	32	39	34	33	54	88	59	09	95	841
	0	sod –	-	35	04	31	35	35	32	31	27	33	35	아	27
	Total	bis- salved salids in ppm						92				149			
		Other canstituents					00 0 1	0-05 As				PO <sub>lt</sub> 0.10 AS AS 0.02			
		Silica (SiO <sub>2</sub> )			<b>-1</b>	101	_	3 29		al	O.I.	38	87	oi	- St
	millian	Baran (B)	-	0.56	0.514	0.15	0,41	0.28	0.29	0.41	0.42	0° 118	0.39	0.50	0.22
Silie	per m	Flua- ride (F)	88					0.01				0.00			
soilling see alsoo	tents	Ni- frate (NO <sub>3</sub> )	S (ST					0.00				0.01			
	equivalents	Chia- ride (CI)	S MOLINDS (STA	20 0.56	20 0.56	7.2	9.5	8.2	6.5	20	15	19 0.54	14 0.39	0.62	8.5
	ē	Sul - fate (SO <sub>4</sub> )	AR LO					13				13			
	canatituents	Bicar – bonate (HCO <sub>3</sub> )	CREEK NEAR	68	63	42 0.69	цв 0•79	38	34	ь. 0°-80	1.31	1.25	62	56	0; °0
		Carban - E	MILL CR	0 00	00.00	0000	0.00	000	0000	0000	0000	0000	000	00.0	000
	Mineral	Patas- Sium (K)	Ξ	0.03	2.4	0.03	1.7	0.04	0.0			0 00			
		Sadium (Na)		14	18	0.31	213	8.7	7.7	0.48	15	16	15	17	8.0
		Magne- sium (Mg)		5.2	5.7	3.0	3.6 10	2.9	2.4 0.20			6.8			
		Calcium (Ca)		13	13	0.40	9.6	8.7	9.2	<del></del>		15			
1		¥ W		7.3	7.7	7.3	7.5	7.3	7.5	7.9	8.2	7.7	7.5	7.5	7-3
	Specific	conductance (micrambos at 25°C)		198	201	100	134	117	113	154	212	213	187	203	113
				100	104	104	100	96	102	105	137	110	96	96	96
		Dissalved oxygen ppm %Saf		13.5	11.6	12.2	10.4	9.7	9.3	9.5	10.9	6.6	10.1	10.7	11.5
		Temp In OF		37	51	147	57	65	89	73	82	72	95	53	911
		Discharge in cfs		93	155	539	164	257	214	20	2.7	3.7	122	125	551
		Date and time sampled	1957	1/11	2/14 1030	3/13	4/9 1210	5/7 1430	6/11 1410	7/9 1040	8/13 1455	9/17	10/23	11/13	12/19

a Iran (Fe), aluminum (Al), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{000}$  except as shawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly eamples made by Calif. Dept of Public Health, Division of Labardes.

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CENTRAL VALLEY REGION

	Analyzed by		겨	蓝	괦	22	ad	ad	25				
_			извк	Usuk	USBR	LUBR	USBR	USBR	USBR				
	bid - Coliform												
Tur-	- pid -												
	Hardness as CoCO <sub>3</sub> Totol N.C.												
			7								 		 
lo Per	ed sod -		1.2	18	21	21	77	27	36		 <del> </del>		 <u> </u>
ءَ مُ	solids in ppm		100	58	847	877	76	99	70		 		 
	Other constituents												
	Silica (SiO <sub>2</sub> )												
Hion	Boron (B)	. 23b)											
per million	Flua- ride (F)	ER (Sta											
	Ni- trate (NO <sub>3</sub> )	CUSURNES RIVER (Sta											
equivolents	Chlo- ride (CI)	CCSURVI	0,0	2.1	3.9	2.8	2,1	7.8	8.5				
İ	Sul - C fore (\$0 <sub>4</sub> )	BELOW (	<u> </u>	-11		- 1		• 7	<u> </u>		 		
* 1		MONELUMNE RIVER BELOW								<del></del>			
ni i suo:	banate (HCO <sub>3</sub> )	LUMBE											
MINERAL CONSTITUENTS	Corbon- ote (CO <sub>3</sub> )	MOKE										_	
	Potas- sium (X)												
	Sodium (No)		0.3	3.2	3.5	2.5	3.9	3.4	404				 
	Mogne- Sium (Mg)								•				
	Colcium Mc (Co)												
1	J H												
ific	mhas P 5° C)												
Spec	(micramhas at 25°C)		113	11	17	52	72	55	53				
	gen %So												
	e i e		55	9	20	7.1	7.4	2	70				
	Discharge Temp in cfs in of	hot Avail- able											
	ond time sompled	1957				6-27 1035	7-30 1430	8-27	10 <b>-1</b> 1305				

a Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as 000 except as shown.

b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and ronge, respectively Colculoted from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

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f Field pH except when noted with #

ANALYSES OF SURFACE WATER

OF SURFACE WATER CENTRAL VALLEY REGION ANALYSES

;	Anolyzed bye			USBR	USBR	USE	ndicil.	изви	USBR	Nacu 1							
_	ity MPN/ml						· .			<u>.</u>				11-0-024 PA	410000 - 100	 ,	
To T	n ppm																
	os CoCO <sub>3</sub> os CoCO <sub>3</sub> Totol N.C.								_								
Per-	sod –			2.0	19	37	27	35	31	12		- p	_				
Totol Dis-	solved solids in ppm			7/8	112	<b>6</b> 0	136	152	148	120							
	Other constituents																
	(SiO <sub>2</sub> )																
million	Boron (B)		a. 23c)														
volents per mill	te ride		Sloud (Sta.														
equivolents per million	e trote (NO <sub>3</sub> )		TANA SI	r.1	N-1	ro1	611		اءر	l			_				
ed	Chlo-		BELLOW CEORGIANA	5.7	5.7	5.3	9.5	19	15	179	· · · ·					 	
nts in	- Sul - fote (SO <sub>4</sub> )															 	
constituents	Bicar- bonote (HCO <sub>3</sub> )		MOKELUMNE RIVER											_		 	
Mineral c	Corbon- ote (CO <sub>3</sub> )		OKELUM													 	
Σ -	Potos- sium (K)		21														
-	Sodium (No)			9.0	6.2	9.4	9	16	174	9						 	
	Mogne- sium (Mg)																
	Calcium (Co)																
v	os (C)													_			
Specifi	conductonce (micromhos of 25°C)			129	1740	109	162	199	199	204							
	gen %Sot																
										-				_			
ŀ	Dischorge lemp in cfs in oF	D		54	63	20	71/2	70	70	20							
		Rated															
Dote	and time sampled	1957		2-27 1205	5-1 1130	5-27	6-27	7-30	8-26	10-1							

o from (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{QO}{0.00}$  except as shown. Dietermined by addition of analyzed constituents

c Grovimetric determination.

d Annuol median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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COCCOSA MATERIAL MATERIAL SON SON SELECTION OF THE CONTROL OF STATE STATE OF STATE O ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

	Analyzed by e		USGS	0505	nses	USGS	nsgs	nses	SSSO	USGS	USGS	usgs	nsgs	USGS	
•	Coirtorm d MPN/mi											0.6 Median 2.6	Max. 620	Min. 0.06	
-	- piq		9.0	0.8	2	#	80	9	-	7	0.7	9.0	7	7	
	CO <sub>3</sub>		0	2	2	0	0	0	-	9	0	0	0		
	Hardr as Ca Total ppm		12	16	18	16	16	16	14	16	10	13	13	14	
ď	sod -		25	23	20	23	21	21	<b>т</b> г	20	28	24	27	28	
Total	_						34				32				
	Other constituents						Pol <sub>t</sub> 0.00 Fe 0.05 A1 0.07 Zn 0.09				Fe 0.05 A1 0.04 Zn 0.05 Cu 0.01				
	Silico (Si0 <sub>2</sub> )						11		· -		<u></u>				
- Iko	Boron (B)	23a)	0.00	0.04	0.15	0000	0.0 0.02	0.00	0.04	0.00	00 0 00 00	0.05	0.00	0.10	
parts per millian volents per millian	Flua- ride (F)	STA.					0.00				0.8				
E	Ni- trate (NO <sub>S</sub> )	PLANA (					0.00 0.00				0.00 0.00				
equivalents	Chlo- ride (Ci)	LANCHA PL.	1.3	1.5	2.5	10.0	2.0	0.01	1.0	0.00	0.07	0.02	2.0	3.0	
i n	Sul - fore (SO <sub>4</sub> )	NEAR L				'	1.9				0.04			<u> </u>	
	Bicar Su banate for (HCO <sub>3</sub> )	RIVER NE	16	28	16	36	10	33 50	16	20	10	13	16	16	
constituents		$\rightarrow$	10	0	اه	000	21 00 00 34	<u> </u>	0	10	14 00 0.23	0	0	o	
Mineral	- Carban- ate (CO <sub>3</sub> )	MOKELUMNE		2 2 0.00	0.00	- 1	2 0.00	- 1	0000	0000	0.00	0.00	0000	0.11	
	Patos- sium (K)	윘	0.02	0.02	0.00	0.02	0.02	0.0			0.03				
	Sodium (No)		2.0	2.2	2.1	2.3	2.1	2.1	2.0	0.08	2.0	1.8	2.2	2.5	
	Mogne- sium (Mg)		0.00	1.1	1.8	0.08	0.06	1.0			0.02			•	
	Cotcium (Co)		3.8	4.4 0.22	4.2 0.20	4.8 1.0 0.24 0.08	5-5	4.8 1.0 0.24 0.08			3.6				
	H &		6.9	6.9	6.9	7:1	6.9	6.9	7.0	8.9	0	6.9	7.0	6.9	
0	(micromhas of 25°C)		39.0 6	45.16	13°0 6	43.2 7		१ भ हेम	33.5 7	32.9 6	33.5 7	34.7 6	35.5 7	35.6 6	
Spec							911 46			97 3	96	98	99 3		
	Dissalved asygen ppm %Sat		105	101	107	101		102	100					100	
	1 1		12.3	12.1	3 12.5	11.3	0.11	10.7	10.2	9.7	9.8	6.6	10.4	11.0	
	ge Tenp		8 47	911 11	9 17 9	14 51	88 50	0 57	65 60	09 11	32 61	65 64	95 449	672 52	
	Dischorge in cfs		698	144	716	ħ69	688	710	669	1769	682	677	69	9	}
	Dote ond time sompled	1957	1/14	2/13	3/11	4/15	27	6/17	7/17 0950	8/19 0945	9/13	10/22	11/27	12/11	

a Iron (Fe), aluminum (AI), orsenic (As), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{60}{0.00}$  except as shown.

b Determined by addition of analyzed constituents

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ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL VALLEY REGION

		Anaiyzed by 6		USGS	usgs	USGS	uses	nses	USGS	uses	usgs	USGS	nsgs	USGS	USGS
		Coliform MPN/ml									. <u>-</u>		Median 560	Max. 7000	Min. 13
	F	o pid r		-		6	9	2	9			- 2		<u>Γ</u>	-
		Hardness as CaCOs Tatal N C ppm		18 2	20 1	19 ц	16 0	17 0	0 ht	20 5	14 2	13 0	16 0	0 7	15 1
										~~~					
	٥	Cont Cont tum		19	2ф	18	23	2ф	36	20	26	53	24	56	29
	Total	solved solved in pom						33				30			
		Other constituents						12 PO <sub>11</sub> 0.00 a Fe 0.05 A1 0.1U Cu 0.01 Zn 0.02				10 PO <sub>14</sub> 0.10 Cu 0.01 a			
		Sifica (SiD <sub>2</sub> )		8	2	0	81		-81	7	0.0	·	5	0	0.10
20	million	Boran (B)	33	0.00	0.02	0.02	0	0.2 0.00	0	0.1	o	000	0.0	ं	o
1	per	Fluo- ride (F)	T.A.												
parts per millian	lents	N:- trate (NOs)	3E (8					0.01				0000			
יים ושיים איים ויים ויים ויים ויים ויים ויים ו	equivalents	Chio- ride (Ci)	WOODBRIDGE (STA	1.2	0.06	1.6	1.3	1.th	0.0	1.2	2.2	1.3	1.8	0.03	3.5
1	Ē.	Sul - fore (SD <sub>4</sub> )	AT W					2.5				0.02		-	
75	constituents	Bicar Si bonate ( (HCD <sub>3</sub> ) (S	RIVER	20	0.38	0.30	24 0.39	22 0.36	20	18	0.25	20	21 0.34	0.30	0.28
CENT			MOKELUMNE	0.00	0000	00.0	000	000	000	000	000	000	000	0000	000
	Mineral	as- Carban- ate (CO <sub>3</sub> )	MOKEI	0.0 0.0	0.08	0.08	0.02	000	0.02			1.2			
		Sadium Patas- (Na) Sium (K)		0.09	3.1	2.1	0.10	0.11	0.10	2.4 0.10	2.4 0.10	2.6	2.4	2.2	0.12
				$\frac{2.1}{0.17}$	0.12 0	2.9 2	0.06	0.07	0.00	0 0	0 0	0.12	0 0	<b>N</b>  0	010
		Mogne- Sium (Mg)													
		Calcium (Ca)		0.20	5.4	2.8	5.2	0.26	5.4 0.27			2.4			
		Ŧ 4		6.9	6.9	7.3	7.1	7.1	7.1	7.1	7.3	7.1	6.9	7.1	6-9
	Specific	conductance (micrambos at 25°C)		39.4	57.1	42.4	f* ††	841	43.7	- 41.9	37.8	1. th	T <sub>1</sub>	38.8	38.9
				101	102	ווו	93	98	101	95	101	98	75	96	46
		Dissaived oxygen ppm %5a		12.4	10.9	11.8	6.6	8.6	8.6	4.8	9.3	9.3	9.1	10.4	1101
-		Temp in OF		-t <sub>1</sub> -t	55 1	55	55	09	63	71	9	65	45	514	641
		Discharge Ti	Mean Daily	305	109	η94	388	30ф	16μο	98	91	261	314	544	370
		Date and time sampled	1952	1/11 0840	2/21 15 <sup>4</sup> 5	3/15 1350	4/12 0940	5/17	6/13	7/12 0815	8/9 0750	9/27	10/18 0925	11/22	12/11

a Iran (Fe), aluminum (A1), areenic (Aa), capper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{2000}$  except as shown.

b Determined by addition of analyzed constituents.

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d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Labartes.

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ANALYSES OF SURFACE WATER TABLE B-14

\* Field of success when noted with a Stote Department of Water Plaster County, as Indicated the Model County, Los Angeles Dept. of Water & David Charlet (MWD), Los Angeles Dept. of Water & David City of Los Angeles Dept of Pub Meater (LADW).

CENTRAL VALLEY REGION

	-		Specific					Mineral	Mineral constituents	ts in	equiv	ports per million	per million	lion	-		Totol	L		Į,		_	
Dischorge Temp Dissin of oxy		ygen %Sot	conductonce (micromhos of 25°C)	Hd.	Colcium Siu	Mogne-Soc Sium (Mg)	Sodium Polos- (No) Sium (K)	Carbon- ote (CO <sub>3</sub> )	honote (HCO <sub>3</sub> )	Sul - fote (SO <sub>4</sub> )	Chio- ride (CI)	rote (NO <sub>3</sub> )	Fluo- ride (F)	Baron Si (B) (S	Sitico (SiO <sub>2</sub> )	Other constituents	solved solids in ppm	sod - o	Hordness oe CaCO <sub>3</sub> Total N.C.	Pid c	bid - Coliform	Anolyzed by e	P
Average Mean								S. S.	ENMIN EXCM	UMNE RIVER AT	WOODBRI	IME (Sta.	a. 23)					•					T
3			41.6	6.8	0.24	0.0	2.3	0000	16								36		 77	1		0.003	
			43.1	6.8	3.5	1.5	2.3 0.10	0.0	17								38		15 1	ч		20.0	
			45.1	6.8	0.22 0.	0.10	2.2	00.0	0.30								38		16 1			CCCO	
			71.2	6.7	5.6	0.30	3.2	0 0	30								8		32 7	2		Stiel .	
			60.2	6.9	5.6	0.14	2.9	000	0.36			•					38		я			أنمذلا	
			57.0	6.7	5.6	0.10	3.1	0000	20								07		19 3			0.00	
			58.6	9.9	5.6	0.11	2.8	000	0.31								38		27   17			5000	
			17.99	6.7	6.11	11.7	3.2	000	20								52		23 7			0.303	
			1.51	6.7	0.24 0.	20.11.0	2.2	0.00	17								32		19 5			0550	
			47.1	9.9	0.24	0.08	2.1	000	0.30								30		16 1			SULUS	
			16.6	7.0	5.3	0.06	2.3	000	20								07		16			0.003	
			50.3	6.7	5.9 0.	0.03	2.l <sub>1</sub> 0.10	000	0.26								142		16			0.505	
			17.8	6.8	0.30	0.0	2.4	00	0.33								42		17			0565	
			52.0	6.8	5.7 0.28 0.	0.06	2.6	000	0.34								1,2	-	1.7			0.003	
			51,1	6.9	5.6	0.06	2.4	0.0	0.33								1,2		17			5000	
			52.1	6.9	5.8	0.07	2.4 0.10	000	0.38								14.3		18			State	
			1,9.2	6.8	1. 1. 0. 22 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0. 0.	1.7	3.2	000	0.33								32	- 1	18 2			10363	
(41)	1	( ( ) (	1.07	(10)		1717	(12)	1				5											1

a tran (Fe), atuminum (A1), arsenic (As), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QO}{0.00}$  except as shawn. b Determined by addition of analyzed constituents

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f Field pH except when noted with #

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

TABLE B-11

		Analyzed bye		USGS	USGS	USGS	Special	VSGS	USGS	USGS	USGS	USGS	USGS	0363	UGGS	USGS	USGS	USGS	บรดร
		bid – Coliform		-			_												
_	Tur	- bid ity In ppm														_			
		N.C		2	0		0	0	0	0	0	77		0	2 2	20	0	20	20
-		( )		18	1,11	77	13	12	15	17	17	777	77	1 15	3 17	138	177	18	1 15
-	ol Per	lids sod – ppm		31	53	32	22	27	F73	η6	777		36	32 27	30 23	33 22	32 24	1η 50	33 21
L	<u>ئۇۋ</u> 1	solved solids in ppm																	
i		Other constituents											Zn 0.05						
		Silred (SiO <sub>2</sub> )																	
c	Illion	Boron (B)	(q)																
millio	per million	Fluo- ride (F)	(cont d)										÷						
ports per million	equivolents	Ni- trote (NO <sub>3</sub> )	sta. 23)											64					
	equiv	Chlo- ride (CI)	WOODBRIDGE (S																
.5	- 1	Sul - fate (SO <sub>4</sub> )	AT WOODE																
4	1100	Bicor- bonofe (HCO <sub>3</sub> )	IIVEH A	20	18	16	13	16	0.33	24 0.39	22 0.36	24	16	18	18	0.31	0.28	16	16
Missississis	- 1	Carbon- ate (CO <sub>3</sub> )	E LUMBE	00.00	0.00	00.0	00.00	00.00	00.00	0000	0.00	00.00	0000	000	0,00	00.00	0.00	00.00	0000
N. N.		Potos- sium (K)	읮																
		Sodium (Na)		2.8	2.4	2.6	2.h 0.10	2.3	2.1	2.h	2.2	2.1	2.6	2.5	2.2	2.2	2.1	2,1	1.9
		Magne- sium (Mg)		1.7	0.00	1.0	20.0	0.0	1.1	0.00	1.5	1.3	1.9	1.2	1.5	1.5	0.0	1.5	0.08
		Colcium (Co)		4.4 0.22	11.4 0.22	0.20	11.0	0.21	0.21	5.0	1.4 0.22	7.4	2.h 0.12	0.20	4.h	0.21	11.11 0.22	0.24	0.22
		Hd &		6.9	6.5	6.3	7.0	6.9	7.1	6.9	7.0	6.9	6.5	7.0	7.0	6.8	6.7	6.7	6.8
	Specific	conductance (micromhos of 25°C)		49.2	41.0	40.7	38.8	h3.2	h2.8	43.8	1,0,1	56.8	39.6	14.3	42.0	41.9	1,7.0	1,8.1,	38.8
		Dissolved oxygen ppm %Sot																	
		Temp in oF																	
		Discharge Temp in cfs in <sup>o</sup> F	Average Mean	Daily 1030	7000	100	06	100	100	160	170	161	210	290	250	320	360	350	110
	9	ond time sompled	1957	6/13-23	6/211-30	7/1-10	7/11-20	7/21-31	8/1-15	8/16–31	9/1-7	8//6	9/9-2U	9/21-30	10/1-10	10/11-20	10/21-31	11/1-10	11/11-20

o Iron (Fe), oluminum (Al), arsenic (As), copper (Cu), lead (Pb), monganese (Mn), zinc (Zn), ond chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by addition of analyzed constituents

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## ANALYSES OF SURFACE WATER TABLE B-11

CENTRAL VALLEY REGION

	Anolyzed		USCS	U3G2	5500	
	bid - Coliform liy MPN/mt					
- 1	- Pi B b b d					
<u> </u>	CO3 N.C. Ppg		1/1			
	Hardness ae CoCO <sub>3</sub> Total N.C. ppm ppm		16	77	15	
Pari	sod -		777			
Total	salved solids in ppm (c)		31	55	12	
	Other constituents					
	Silica (SiO <sub>2</sub> )					
llion	Boron (B)					
per million	Flua- ride (F)	sont d				
- 1	ni- trafe (NO <sub>3</sub> )	23) (				
equivalents	Chlo- ride (CI)	OGE (St.)				
=	Sul - fate (SO <sub>4</sub> )	MOKELUMIE KIVER AT WOODBRIDGE (St.			-	
Mineral constituents	Bicar- bonate (HCO <sub>3</sub> )	VER AT	U. 23	16	13	
101	Corban- ate (CO <sub>3</sub> )	UMUE KI	0.0	000	000	
MIN	Potas- ( sium (K)	MOKEL				
	Sodium (Na)		2.3	2.2	2.3	
	Mogne- sium (Mg)		1.2	0.08	0.08	
	f Coleium (Ca)		0.22	14.3	14.2 0.21	
	£		1.9	4.9		
Specific	canductance (micromhos at 25°C)		46.1 6.7	41.6 6.4	17.6 6.1	
0,	gen (r					
	Disso oxy ppm					
	in of					
	Discharge Temp in cfs in 0F	Average Mean	170	750	1,20	
	ne od	1957	11/21-30	12/1-18	12/19-28	

o Iron (Fe), oluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chramium (Cr), reported here as  $\frac{00}{0000}$  except os shown. b Determined by addition of analyzed canstituents

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ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Anolyzed by e		USGS	usgs	usgs	usgs	usgs	usgs	n <b>s</b> ds	n <b>s</b> es	usgs	USGS	uses	uses	
		MPN/ml											Median 62	Max. 7,000	Min. 2.3	
	1	- pid - pgd u		15	20	20	20	24	24 40	20	20	7	9	10	6	
		N CO3		941	70	<del>11</del> 9	52	27	5ή	吉	28	<b></b>	31	30	31	
		1 1		143	179	162	122	87	48	69	94	153	120	96	98	
	å	sod -		51	53	50	η-	39	<del>-</del>	36	641	50	52	52	53	
	Total	Solved solids in ppm		358	994	1400		186				375				
		Other canstituents		16 Fe 0.00	5 Fe 0,02	24 Fe 0.03	10 0 27 20 0 LA	21 PO <sub>4</sub> 0.20 Re 0.12 &				27 PO <sub>4</sub> 0.35 a A1 0.10 Cu 0.06				
	1_	an Silico (SiO <sub>2</sub> )	<b>a</b>	1	25		<u> </u>	1	킈	81	91		91	25	25	
	million per million	6- Baran (8)	104)	1 0.25	2 0.31	3 0.21	0.11	2 0.07	0.14	00.00	90.00	14 0.22	0.16	0.02	0.02	
	ē	Flua- ride (F)	(STA.	0.01	0.02	3.6 0.3		2 0.01				2 0.02				$\dashv$
	parts per millian equivalents per mit	Nr- trate (ND <sub>3</sub> )	FERRY	3.3	3.1	3.6		1.4 0.02				0.02				
	e drive	Chla- ride (Cl)	COURT	3.05	3.86	3.13	1.92	1,16	1.33	0.65	1.78	3.27	88 2.48	2.03	2.09	
	Ē	Sut - fate (SD4)	CLIFTON	52	1.60	1.39		29				36				
,	constituents	Bicar- banate (HCO <sub>3</sub> )	AT	118	2,18	1.95	1.39	1,20	1.20	1.10	1.31	133	1.79	1.33	1.34	
-	Mineral con	Corbon- ote (CO <sub>3</sub> )	D RIVER	0000	0.00	0.00	0.00	0000	0.00	0.00	0000	0000	0000	0.00	00.00	
	M	Potos- srum (K)	0	2.7	2.8	3.5	2.3	1.9	2.2			4.2				
		Sadium (Na)		3.04	96	3.35	μ <sub>2</sub>	26	31	18	ц2 1.83	3.18	2.57	2.04	2.18	
		Magne- sium (Mg)		15	1.58	1.44	1.04	8.4	8.3			1,36		•		
		Colcium (Ca)	-	33	140	98.00	28	21	20			34				
		E .		7.7	7.5	7.5	7.3	7.3	7.3	7.3	7.4	7.9	7-7	7.3	7.2	
	0,000	conductance (micrombos at 25°C)		637	811	ħ69	191	318	321	218	381	672	946	1438	459	
				η6	89	85	82	96	81	85	88	79	91	82	81	
		Dissolved oxygen ppm %So		10.7	9.5	8.0	7.9	7.0	7.1	7.1	7.6	6.8	8° 3	0.6	9.3	
		Temp in OF		50 1	55	59	63	89	72	77	74	22	63	53	642	
		Discharge In ofs		Tidel Area												
		Date and time sampisd	1957	1/15	2/1 <sup>4</sup> 1230	3/12	4/16 1320	5/8	6/18 0935	7/16	8/20 1340	9/11 15 <sup>4</sup> 5	10/23	11/26	12/12	

a Iran (Fe), aluminum (AI), areenic (Ae), capper (Cul, lead (Pb), manganess (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shawn.

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\* Field pH except when noted with \*

e state of the transfer of Works Transfer of Works Transfer of Works The Country of The Transfer Of T ANALYSES OF SURFACE WATER TABLE B-11

CENTRAL VALLEY REGION

	Anolyzed bye			บวยน	изви	Mag	USBK	USBR	изви	USBR	USER	UJBK	USBR	no Bir	
	Tur- bid- Coliform ity MPN/ml														
-	Did - C														
	Hordness oc CoCO <sub>3</sub> Totol N.C.														
	Sod -			31	36	70	27	53	31	7.47	22	32	13	8	
,	solved solids in ppm			380	767	312	152	168	144	272	270	21/4	240	568	
	Other constituents														
	Silico (SiO <sub>2</sub> )														
	5												_		
million	Fluo- ride (F)		)8a)												
	hlo- hi- ride trote (CI) (NO <sub>3</sub> )		(Sta. 1												
ă	Chlo- ride (Cl)	6	AT HOLLAND THACT (Sta. 108a)	80	98	72	23	36	50	72		45	59	27	
ë	Sul - fate (SO <sub>4</sub> )		HOLLAN												
constituents	Bicor- bonate (HCO <sub>3</sub> )														
Mineral con	Corbon- (CO <sub>3</sub> )		OLD RUVER												
Min	Potos- Sium (K)														
	Sodium (No)			48	59	48	77	8	14	45	51	33	37	77	
	Magne- sium (Mg)														
	Colcium (Co)														
	됩						-								
	Specific conductonce (micromhos at 25°C)			299	721	519	224	272	194	617	9777	7447	387	8 6 6	
	gen (														
	Dissolved oxygen ppm %Sol			-											
	1			57	57	\$	59	79	78	73	72	12	779	95	
	Dischorge Temp in cts in OF	Tidel													
	Oote ond time sompled	1957		1-28	2-28	3-27	5-2 1145	5-29 1115	6-27	1000	8-29 1330	9-26 1300	.10-31	11-27	

o Iron (Fe), aluminum (AI), orsanc (Aa), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 00 except as shown. b Determined by addition of analyzed constituents

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_																
		Anaiyzed by e		USGS	USGS	USGS	USGS	usgs	USGS	USGS	USGS	USGS	USGS	USGS	nses	
		Coliform MPN/mi											Median 62	Max. 7,000	Min. 6.2	
	- Jo	- pid - hid uppm uppm		15	25	20	20	30	30	30	10	16	77	20	20	
				71	89	81	6	7	10	9	20	12	2	26	25	
		Hardn as Ca Tatal ppm		135	160	149	63	59	62	217	98	81	77	100	76	
	Pers	e ad -		1,40	38	710	31	32	38	041	54	53	T <sub>1</sub>	45	142	
	Tatal	salved salids in ppm		280	314	306		113				214				
		Other constituents		Fe 0.04	Fe 0.05	Fe 0.07		A1 0.15 Cu 0.09 PO <sub>4</sub> 0.15 a Zn 0.01 Fe 0.15				Po <sub>14</sub> 0.20 Fe 0.05 A1 0.09				
		(Sitica (SiO <sub>2</sub> )		77	21	22		118				22				
	millian	Baron (B)	112)	0.18	0.17	0.07	0.05	0.09	0.14	0.00	0.21	0.12	0.00	0.13	0.19	
acilli.		Flua- ride (F)	(STA.	0.03	0.04 0.02	0.03		0.01		,		0.02				
	ا ا ا	trote (NO <sub>3</sub> )	ND (S	7.6	7.6	0.13		0.08				0.01				$\dashv$
- 1	equivalents	258	ISLAND		10	10	7/80	10	2010	120	0 1	- 10	30	- Ma	0/80	_
CENTRAL VALLE INCIDE	9	Chia- ride (CI)	MANDEVILLE	1.86	2.09	2.14	0.48	0.48	26	0.70	1.97	1.69	30	1.49	1.38	
	ē	Sut - fate (SO <sub>4</sub> )	MAND	1.35	68 1.42	1.27		12				18				
AL V	constituents	Bicar- banafa (HCO <sub>3</sub> )	ER AT	78	1.41	1.36	1.08	63	63	70	81	1.38	91	90	1.38	
CIVILL		e B (÷ p	RI	0,00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Mineral	n ate (CO <sub>3</sub> )	OLD	2.2	201	2.3	03 0	1.3	0.04	0	0	20.7	0	0	0	
		Patas- Sium (K)		10	10	10_	0			13	94	- 10	<u>ښو</u>	38	35	_
		Sodium (No)	<u> </u>	1.83	2	2.00	13		0.78	0.83	146	٦	1.09	38	1.35	
		Magne- sium (Mg)		1.14	1.45	17	6.8	5.8	6.6 0.54			0.92				
		Calcium (Ca)		31	35	32	14	14	14 0.70			14				
		표 🕶		7.3	7.1	7.3	7.3	7.3	7.3	7.6	7.3	8.1	7.5	7.5	7.3	
	Specific	canductance (micramhas at 25°C)		1188	534	529	190	182	212	217	397	376	569	387	363	
		n Casat		92	69	88	87	98	98	93	98	8	87	98	98	-
		Dissalved axygen ppm %Sat		θ. • 0	10.3	4.6	8.7	8.1	7.6	7.9	7.4	7.7	8.7	9.3	10.0	
		Te and a second		17 1	1 8 1	55	09	69	71	94	7/4	† <sub>9</sub>	09	54	148	
		Discharge Te		Tidal 4	<u> </u>	<u>u</u> \	0	- 0				9	Ψ	Lr\	<u> </u>	
		Date and time sampled	1957	1/15	2/14 0805	3/12	4/16	5/7 1645	6/17	7/16	8/20 0845	9/11	10/18	11/26	12/13	

a Iran (Fe), aluminum (Al), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{\sqrt{Q}}$  except as chawn. Determined by addition of analyzed constituents.

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f Field pH except when noted with a

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TABLE B-14
ANALYSES OF SURFACE WATER
CENTRAL VALLEY REGION

(MWD), Los Angeles Dept. of Wolsz & Power (L.ADWP), City of Los Angeles Dept of Pub Health (L.ADPH),

	Analyzed by e			USGS	usas	USGS	USGS	USGS	USGS	USGS	nsgs	USGS	nsgs	USGS	usg s	
	Coliform MPN/mi								•				Median 146	Max. 7,000	Min. 5	
	- pid -			25	20	20	15	30	0†1	36	15	13	10	0	15	
		Edd		155	127	142	3#	24	19 1	7	22	17	22	34		
	Hardr os Co	Edd		226	220	236 1	96	83	81	62	8C 8D	98	106	104	108	
9	- po			[7]	94	44	39	39	η-	37	53	53	51	52	641	
Total	solved solids in ppm	۵		475	487	520		171				215				
	Other constituents			Fe 0.04	Fe 0.04	Fe 0.04		Fe 0.14 A1 0.16 PO4 0.15 Cu 0.08				Polt 0.15 . Fe 0.09				
	Silico (SiO <sub>2</sub> )			17	23	26		77				20				
million per million	Baron (B)		108	0.28	0.21	0.23	0.10	0.14	0.00	00.00	0.12	0.13	0.12	0.07	0.15	
multin	Fluo- ride	3	-	0.03	0.02	0.03		0.2				0.3				
1511	trate	_	BRIDGE (STA	13	7.6	8.3		0.0				1.0				
parts pe equivalents	Chla- ride	$\top$	1	3.33	130	132	1,24	38	1.21	20	. 1.95	1.69	7 <sup>t</sup> 2.09	2.17	80	
Ē	Sut - fate	180c)	ORWOOD	132	109	127		25		-		13			-	
canstituents	Bicar - bonafe		IVER AT	86	113	115	76.	1.18	75	1.10	1.31	1.38	103	1.39	1.34	
	Carban - B	$\neg$	OLD R	00.00	0.00	0000	0000	0.00	0000	0 00	0000	0000	0000	0000	0000	
Mineral	Polos- Co			2.8	2.9	3.5	2.0	2.0	2.0	-		2.8				
	Sadium Pc (Na)			3.22	3.70	3.83	29	1.09	28	0.74	146	1.91	2.22	51	2.04	
	Magne- Sc	D E		1.87	23	27 2.18	10	9.2	8.1		14	0.97		120	- 12	
	Calcium (Ca)	+		2.64	2.50 1	2.54 2	1.10	18	19 0.95 0			0.75 0				
		4		7.1	7.3	7.3	<u>د</u> ابر	m,	7.3	7.5	7.5	7.3	-5-	7.3	7.2	
- Taile	conductonce (micramhos of 25°C)			807 7.	833 7.	877 7.	341 7	286 7.	312 7.	203 7.	401 7.	343 7.	1460 7.	471 7.	191 7.	
S		TD C		85 8	43	98	82	75 2								
	0 %	, % Sat							82	85	89	98	18	80	85	
		E		8.6	6.6	φ •	8.2	7.0	7.1	7.1	7.7	7.6	8.2	8.7	9.7	
	Te ar			64	50	58	61	99	7.	12	74	72	63	53	6+2	
	Discharge Temp			Tidal												
	Date and time sampled		1957	1/15	2/14 1450	3/12	4/16	5/8 1 <sup>44</sup> 5	6/18	7/15	8/21 0745	9/12 0805	10/23	11/26 0940	12/12	

a iron (Fa), aluminum (Al), areanc (Aa), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{500}$  except as shawn. D Determined by oddition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate marthly samples made by Calif. Dept of Public Health, Division of Labarotes.

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\* Field pH except when noted with a

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE 11-14

															_
	Analyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	nsgs	
	Coliform MPN/ml											Median 96	Max. 7,000	Min. 5	
707	- piq		10	15	19	20	80	20	35	6	14	11	10	6	
			143	70	59		69	16	ή9	49	50	33	34	31	
			140	181	159	257	183	85	198	211	186	129	114	120	
Per	mod -	=	51	53	20	147	748	947	51	51	52	51	8	611	
Tota	solved solved in ppm						428				6941				
	2) Other constituents										Po <sub>t</sub> 0.50				
	(SiO		NI	<u>ω</u> Ι	<i>±</i> 1	al		121	d	VOI.		-dl	01	г <b>и</b>	4
Figure			0.1	0.36	0.21	0.3		0	0.1	0.2		0.2	0.1	0.1	$\Box$
	Fluo- ride (F)	ন্ত্ৰ				'	0.2				0.4				
٦١٦	Ni- frote (ND <sub>3</sub> )	- 1													
equivo	Chia- ride (CI)	TRACY	105	3.84	3.19	200	142	1.35	152	166	146	2,62	2.26	2.20	
ē	Sut - fote (SO <sub>4</sub> )						96.0			,	50	•	•		- 1
itituents	Bicar - bonata (HCDs)		118	135	122	156	2.31	1.38	163	2.87	166	117	1.61	108	
	orbon- ore (CO <sub>3</sub> )	or or	00.00	0000	0000	0.00	0000	00.00	0000	0000	00.00	0000	00.00	0000	
Mine	Sum Sum (K)		2.6	0.08	3.5	0.10	3.6	0.05			5.2				
				95	3.31	108	3.52	34	93	101	4.13	62 2.70	53	53	
			150	20	1.32	2.25	1.46	7.9			19				
	Colcium (Co)			1	33	58 89	2.20	21			43 2.15				
	표 4				7.5		6.7	7.7	8.5	7.9	7.9	7.3	7.3	7.2	$\dashv$
Specific	(micromhos at 25°C)		η29	805	691	1040	779	341	850	905	835 7	580	501	513	
	15		92	82	150	48	79	90	26	73	70	71	73	58	- 1
	Dissolv osyge		η•01	ಕ್ಕ ಕ	8.3	8.0	7.3	9.4 ]	10.4	6.3	6.2	7.0	8.0	6.7	
	Te de la or		20	±5	8	119	49	7	64	7.7	72	62	53	64	
	Discharge in cfs		Tidal Area												
	Date ond time sompled	1957	1/15	2/14	3/12	4/16 1010	5/8 0850	6/18 0805	7/16	8/20 1005	9/11 1124	10/23	11/26	12/12	
	Mineral constituents in equivolents per million Tatal box.	Discharge Temp Dissalved Conductions Plans Continue State Control Continue State Control Continue State Control Contro	Discharge Temp Dissolved Concerned (micrombas)	Disconarie Temp Discolved Conductored Conductored Conductored Conductored Conductored Conductored Conductored Fig. 1	Specific   Specific	Character   Lange   Constitution   Constitution	Discourse   Cape   Discourse   Disc	Discription   Table   Discription   Discri	Titol   Tito	Character   Char	Character   Char	Tida   50   10.4   22   22   22   22   22   22   22	Table   Tabl	Control   Cont	Tital   St.   St

a iran (Fe), oluminum (AI), orsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. C Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. at Public Health, Division at Lobarataries.

• Minaral analyses mode by USGS, Quality at Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropoliton Water District (MWD), Las Angeles Dept. at Water & Power (LADWF), City at Los Angeles Dept. at Pub Health (LBDPH) ar State Department of Water Resources (DWR), as indicated

† Field pH except when noted with \*

ANALYSES OF SURFACE WATER TABLE B-14

City of Los Angeles Dept of Pub Health (LADPH)

CENTRAL VALUEY BEGION

		Anolyzed by e						uses	nscs	nses	uses	USGS	uses	uses	usgs		
		MPN/mi						Ď.	<u> </u>	<u> </u>	'n	Ď.	Ď		0	Min. 6.2	
-		Lity KP						30	54	25	20	25	04	20fedian 62	22 Max. 7,00		-
-	-	S S S S S S S S S S S S S S S S S S S	ļ					0	0	0	0	0	0	0	0		1
		Hordness os CoCO <sub>3</sub> Total N.C. ppm pom						62	55	69	65	76	83	72	69		
-		sod -						27	29	85	33	33	31	38	011		
	lotol	Solved Solved in pom							115				172				
		Other constituents						0 0 41 0 01	Cu 0.01				Po <sub>tt</sub> 0.40 m Fe 0.02 Al 0.14 Zn 0.02				
		Silica (SiO <sub>2</sub> )						91	22	-dl	7	<b>©</b> I	98	4	্য		 
	per million	Boron (B)						90.0	00.00	0.11	0.22	0.08	0.2 0.00	0.15	0000		
	parts per million volents per mil	Fluo- ride (F)	17.0	1					0.00				٠,٠				
N	arts pe	rote (NO <sub>3</sub> )							0.0				0.0				00
CENTRAL VALLEY REGION	equivolents	Chlo- ride (CI)	CANBY (STA.					2.5	0.0	0.04	3.2	3.2	5.2	5.2	5.0		(Z) and change (C) = 00
VALL	Ë	Sul - fate (SO <sub>4</sub> )	NEAR						5.8 0.12				4.8				
ENTRAL	constituents	Bicor - bonote (HCO <sub>3</sub> )	RIVER NEAR					92	1.46	108	110	127		129	1.93		(-2)
Ö		Corbon- ote (CO <sub>3</sub> )	La	1				0.00	00.0	0 0	000	000	0000	0000	0000		 the charge
	Minerof	Patos- C sium (K)						2°H	2.6	3.5	<u> </u>		5.9				
		Sodium (No)						0.48	11 0.48	0.57	15	27.0	13	20	21		 - Cali
ļ		Mogne- sium (Mg)						5.8	0,40	5.8 0.48			8.0				(an)
		Colcium (Co)						0.75	14 0.70	18			20	<u> </u>			
		¥ ₩						7.7	7.5	7.5	8.1	8.1	7.8	8.1	7.9		0) 500
	Specific	conductonce (micromhos of 25°C)						162	150	179	189	225	253	232	224		(C.)
Ì		-						83	2/9	74	68	88	74	88	78	T)	100
		Dissolved oxygen ppm %So			Snowbound	Snowbound	Snowbound	9.1	7.8	6.8	8.0	8.1	7.5	9.5	0.2	Snowbound	100
					Snow	Snow	Sno	53	58	49	20	99	59	ħς	45 10.2	Sng	 0.00
		Discharge Temp						485	009	630	130	lή	78	108	128	Not	Winimm (A)
		Dote ond time sompled		1957	Jan.	Peb.	Mar.	4/10 1145	5/8 1230	6/12	7/10 1050	8/14	9/18	10/29	11/13	Deo.	a fron (Fe) wheminum (Al) greens (As) conner (C.) hand (Ph)

a Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), 1ead (Pb), mangansee (Mn), zinc (Zn), and chramium (Cr), reparted here as 000 except as shown.

b Defermined by addition of analyzed constituents.

c Gravimetric determination.

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TABLE BALL WATER

ANALYSES OF SURFACE WATER TABLE B-14

0
REGI
VALLEY
CENTRAL

	Anolyzed by e						USGS	USGS	USGS	USGS	USGS	usgs.	USGS				
	7	aliform a											0.9 Median USGS	Маж.	Min. 0.045		
	Tur	Hordness bid – C os CoCO <sub>3</sub> 11y Total N.C.					7	6	7	9.0	9.0	2	6.0				
		N C DE					0	0	0	0	0	0	0				
							55	54	041	95	63	54	45				
	Per	sod -					26	27	20	34	28	29	31				
	Totol	solved solved in ppm						110				119					
	lion	Other canstituents					C C C C C	Cu 0.01 Zn 0.02 Polt 0.15 &			u c	Fe 0.01 A1 0.03					
		Silica (SiO <sub>2</sub> )						31				32					
		Boron (B)	17)				0.02	0000	0.00	0.15	0.01	0.00 0.00	0.03				
ports per million		Flug- ride (F)	(6TA					0.01				900					
a Der	, ,	Ni- trate (NO <sub>S</sub> )	CREEK					0.01 0.01				2 8					
CENTRAL VALLET REGION	conefituents in equivolents	Chlo- ride (CI)	PIT RIVER NEAR MONTGOMERY CR				3.8	0.06	1.0	3.6	0.11	0.14 0	5.2				
277		Sul - fate (SO <sub>e</sub> )	HOM					h°h		•		1.9					
AL VA		Bicor-S bonote (HCO <sub>3</sub> ) ((	NEAR				1.38	1.39 0	02	96	1.48	1.48	1.51				
CENT	- 1	Carban - B ote b (CO <sub>3</sub> ) (H	RIVER				0.00	0.00	0 62	0.00	0.00	0.00	0.00			<del> </del>	
	Mineral	Potos- Co sium (K)	II d				1.9	1.9	1.3			0.07	1-				$\dashv$
		Sodium (No)					9.3	9.8	4.8 0.21	13	11 0.48	0.48	11 0.48				$\dashv$
									10	ि	0		0				$\dashv$
		Mogne- sium (Mg)					6.1	5.4	10			6.4 0.53					
		Calcium (Ca)					12	13	12			0.55					
	표						7.5	7.3	7.5	7.5	9.4	7.8	9°4				
	Specific conductonce (micromhos of 25°C)						143	148	101	155	156	156	191				
	Dissolved oxygen ppm %Sal						96	93	66	98	106	101	115				
				_	_	_	9.6	6.6	9•3	9.2	9.5	9.7	11.8				
				punoquous	punoq	punoqa ous	58	55	99		70	19	58	ť	p		
		Discharge Temp in cfs in oF		ROUS	Aous	8 no v	01/11/1	Othto	2180	1920 66	3990	3930	2970 58	No report	Snowbound		
		Date and time sampled	1957	Jen.	Feb.	Mar.	1600	5/15	6/18	7/16	8/13	9/11	10/8	Nov.	D.0.		

o Iron (Fe), aluminum (A1), areenic (Ae), copper (Cu), teod (Pb), manganess (Mn), zinc (Zn), and chromium (Cr), reported here as 20 except as shown.

b Determined by addition of analyzed conetituents.

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Long Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Fleid pH except when noted with a

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		TO.															
		Anolyzed by e			USGS	USGS	USGS	USGS	USGS	USGS	USGS	nses	USGS	USGS	nscs	USGS	
		Coliform MPN/mi												Median 6.2	Max. 230	Min. 0.62	
	10,1	- p.q - , t. u pom			55	6	32	50	12	10	#	2	2	2	0	_	
		\$00	O E G		10	12	7,	9	2	24	9	00	0	0	#	10	
		Hordr 08 Co	Total		272	162	138	105	102	123	113	130	118	120	153	168	
	Per	sod -			14	13	21	13	$1^{l_{\downarrow}}$	10	11	13	13	11	12	11	
	Total	salved solids	E 0						137				148				
		Other constituents						כייי בייי	Pou 0.15			c c	Fe 0.01 A1 0.56		Tot. Alk. 182		
		Silico	13102)						21				13				
c	illian	Boron	9	~-\	0.57	0.26	0.36	0.36	0.16	0.00	0.24	0.33	0.22	0.15	0.20	0.21	
Dillie Oil	per million	F tua-	(F)	81)					0.01				0.03				
ports per million	1 1	rote etor		ST					1.1				0.00				
oorts	equivolents	Z E	ž	S	1	1	-	+	1 "	1			$\overline{}$				
	edni	Chio-	<u>(</u> )	R WINTERS (STA	0.48	8.5	0.28	5.5	5.8	4.5	0.14	7.0	3.8	3.5	7.3	0.23	
	٤	Sul -	(\$0°	X NEAR					12		-		8.6				
	constituents	Bicor	HCO <sub>9</sub> )	I CREEK	320	3.00	151	121	118	121 1.98	130	2.44	144 2,36	151	178	3.26	
	l	Carbon-B	0,0	PUTAH	0000	000	0000	0000	0000	0000	0000	0000	0000	0000	0.07	00000	
	Mineral				1.5	1.1	1.4	0.04	500	1.2			10.7				
		Po			- 1			<u> </u>	0		6.6	9.2	°	315	7 0	<b>3</b> 5	
		P- Sodium			7 20 + 0.87	9 0.48	3 0.74	0.32	7.6	6.5	6.6	9.2	9 8.6	7.2	9.2	9.9 0.43	
		Mogne-			3.84	2.39	1.86	1,40	1.34	$\frac{21}{1.76}$			1.57				
		Calcium	(62)		32	17	18	14 0.70	14	14 0.70			16				
		I	-		8,1	± .	8.1	8.3	8.3	8.1	8.3	± 8	±. 8	7.9	7.7	8.1	
	Specific	ronductonce nicrombas at 25°C)			550	331	303	229	222	222	232	264 (	261	255 /	318 7	338	
-		1	%Sot		95	117	104	126	109	108	97	131	132	66	96	107	
		Dissolved	mdd		11.2	12.8	11.2	12.6	10.9	10.8	9.5	11.6	11.9	10.2	7.6	12.1	
		Te and			41	53	54	09	09	61	65	72	02	58	<b>λ</b> ξ	20	
		Dischorge in cfs			38 1	69	42	∄	42	147	23	12	01	64	16	75	
		ond time sompled		1957	1/14	2/18 1515	3/11	4/15 1355	5/10	6/14 1230	7/16 1040	8/19 1425	9/10	10/28	11/18	12/23	

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† Field pH except when noted with e

CENTRAL VALLEY REGION

Cariffall Walls   Wa	1 8 Max. 7,000 4 5 Min. 2.3
Ni -   Fluor   Sinta	
Color   Dec	d 4
SENGTA   Determition   Total   Per-   Hand   Constituents   Cons	<b>∓ ₹</b>
Ni	129 124
Ni -   Flue   Baron   Sitico   Other constituents   Vide   (KO <sub>2</sub> )   (F)   (	50
Ni -   Flue   Baron   Sitico   Other constituents   Vide   (KO <sub>2</sub> )   (F)   (	
Ni-   Fluo-   (KD <sub>3</sub> )   (F)   (F)   (KD <sub>3</sub> )   (F)   (F)   (KD <sub>3</sub> )   (F)	
Ni- Fluo- ride (NO <sub>3</sub> ) (F) (NO	
10.00 0.02 0.001	D.22
10.00 0.02 0.001	
Chie- (Chie- (Ch	
	2.54 2.54 88 2.48
Sul- 10 Sul- 1	
Constituents Score	107 1.75 98 1.61
Name   Carbon   Car	0000
3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00 3.00	
	60 2.61 58 2.52
Mogne- 8 (Mg) (Mg) (Mg) (Mg) (Mg) (Mg) (Mg) (Mg)	
Cotcoum (Co) 2.64 2.20 2.59 2.59 2.59 2.59 2.59 2.59 2.59 2.59	
Far is in the the the the the	7.5
, 9 °C	552 7
	78
013201ved 0337gen 043 858 9.2 79 6.8 69 6.8 69 6.8 79 7.1 87 7.3 83	9.0
57 53 53 54 48 11 on	2 2
Tidal 4 Area	
2/14 1957 1/16 0915 2/14 1610 1610 5/8 1540 6/18 1240 7/15 1345 8/21 0830 9/12 0920	

a iron (Fe), aluminum (Al), areenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 300 except as shown. B Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Colif. Dept. of Public Health, Division of Labardes.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub. Health (LBDPH) at State Department of Water Resources (DWR), as indicated

SAST YOUR OF DEFENSE

Water & Power (LADWF), City of Los' Angeles Dept of Pub Health (LADPH),

CENTRAL VALLEY REGION

	Analyzed	. (0		U.C.O.	1305U	Stell	مثادلا	spcn	Sign	فتاديا	noch	United	Uses	. Office	Undo	Siesis	Useu	
	Coliform MPN/mi	,										-						
	Tur- bid-	n ppm																
	Hardness as CoCOs	I N.C.		 0	4	٦	0	0	0	~	~	0	0	0	0	0	0	
		1		 775	99	53	- 51	53	55	59	38	772	48	92	51	52	647	
_	Cent cont	S E		 c 25	b 25	277	772	- 25	25	25	22	19	777	- 23	<u>د</u>	- 33	772	_
_	Solved	solid In pp		102	113	103	o76	110°	110°	120°	95°	966	96	97°	100°	106°	116	
		Other constituents		Fe 0.02; Cu 0.02 Zn 0.18		Fe 0,11;cu 0,06 Zn 0,13		Fe 0.08; Cu 0.01 Zn 0.09	Fe 0.04;Cu 0.02	Fe 0.06; Cu 0.04 Zn 0.17	Fe 0.04; Cu 0.02 Zn 0.43	Fe 0.05; Cu 0.01 Zn 0.05	Fe 0.04; Cu 0.03 Zn 0.05	Fe 0.07;Cu 0.01 Zn 0.06	Fe 0.04;Cu 0.02 Zn 0.09	Fe 0,12;Cu 0,02 Zn 0,10	Fe 0.07; Cu 0.07 Zn 0.10	
	Silico	(SiO <sub>2</sub> )		 77		56		77	621	77]	श	22	56	23	27	23	56	
	9	(B)		90.0		0.00	0	0.05	0.08	0,10	0.12	20.0	0.08	0.00	0,00	0	8	
million	Flug-	ride (F)	-	0.01	0.05	0.0		0.01	0.0				0.01	0.01	0.0	0.0	0.0	
6		(NO <sub>3</sub> )	BEND (Sta. 125)	0.01		0.02		0.7	0.01	0.03	0.02	0.0	0.0	0.5	00.0	0.00	0.00	
	Chlo-	(C)		3.5		5.0		5.0	5.2	6.8	2.0	3.0	3.0	3.0	3.2	3.5	0.07	
Ē		10te (SO <sub>4</sub> )	IVER AT	0.10	8.6	9.6	2.9	7.7	3.8	12 0.25	9.6	5.8	6.7	9.6	77.0	2.7	9.0	
constituents	Bicar-	(HCO <sub>3</sub> )	SACHAHENTO RIVER	1.29	64	64	64 1.05	1.26	77	1:13	44 0.72	56 0.92	1.05	62	1.11	70 1:15	1.07	
Mineral cor	- i - ă	(CO <sub>3</sub> )	SACE	000	0.0	0.00	0.00	0.00	0.00	0.00	000	000	0000	0000	0000	0000	0000	
Ž	Polas-	eium (K)		0.04	1.5	1.4	1.4	70.0	1.5	1.5	1.1	1.1	0.03	0.03	0.03	1.4	1.4	
	100	(No)		9.38	8,8	8.3	7.8	9.2	8.7	9.2	5.0	5.1	0.31	6.3	7.2	7.4	7.3	
	Magne	sium (Mg)		6.4	5.7	5.6	6.6	9.0	5.5	5.2	3.2	07.0	5.0	07.0	5.1	4.6	4.6	
	Coloin	(Ca)		0.55	13	12	9.6	0.60	13	15	8,8	0.50	0.55	0.60	12	13	0.60	
	* =	<b>€</b> -1		7.4	7.4	7.4	7.3	7.8	6.9	6.7	6.7	6.7	6.7	6.7	6.7	7.2	7.0	
	Specific conductance (micrombos	ot 25°C)		243	9777	242	133	150	168	157	107	Ħ	128	130	135	138	133	
	Dissolved	ppm %Sat																
	Oischorge Temp		AVEKAGE NEAN DAILY	1,800	7620	5640	5520	1,700	39110	7860	33,300	25,400	51,230	15,960	8590	5160	6820	
	Oate and time		1957	1/1-6,	1/13-14	1/15-19	1/20	1/21-31	2/1-21	2/22-23	2/24-25	2/26–28	3/1-7	3/8-20	3/21-31	17-17	4/12-19	

a Iran (Fa), auminum (AI), arsenic (As), capper (Cu), lead (Pb), manganesa (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{QO}{QOO}$  except as ehown. Dietermined by addition of analyzed constituents

Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Labardataries e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultont (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Dawer & Labarda by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultont (USBR) or State Department of Water Resources (DWR), as indicated

CENTRAL VALLEY REGION

	Anolyzed bye		ນວັດຣ	ત્રોદા	0000	บรธร	USGS	USGS	Uses	2050	USCS	Uodo	กรดร	USGS	uses	usas			
-			ສ້	ă	á	á	á	ri C	j j	<u> </u>	<u>.</u>	<u> </u>	<u> </u>	<u> </u>	ń	<u> </u>			+
	MPN/mi																		
	S Did																		-
	Hordness os CoCO <sub>3</sub> Totol N.C.		0 577	0 917	0 17	0 14	0 777		0 70	0 117	775	0 177	0 97	0 643	0 1/17	51 0		_	+
-	sod remind		25	25	7		23	25	777	77.	25	777	24	25	27.	21			1
Total	Salved solids in ppm		103	93	q08	78 <sup>b</sup>	86	92	92	76	91	92	88	91	96	16	-		1
	Other canstituents		Fe 0.09; Cu 0.02 Zn 0.13	Fe 0.08; Cu 0.02 Zn 0.09	0°0 0'1;Zn 0°06	Cu <u>0.01;</u> Zn <u>0.04</u>	Fe 0.14; Cu 0.02 Zn 0.08	Fe 0.04; Cu 0.02 Zn 0.09	Fe 0.02; Cu 0.03 Zn 0.09	Fe 0.04; Cu 0.03	Fe 0.03; Cu 0.02 Zn 0.08	Fe 0.02; Cu 0.02 Zn 0.10	Fe 0,00	Fe 0,00; Cu 0,00	Fe 0,00;Cu 0,00 Zn 0,05	Fe 0.08; Cu 0.00 Zn 0.11			
	Sifred (SiO <sub>2</sub> )		56	56			55	25 25	52 26	26	52	5 24	7 50	Z 26	92	100			
r millian per million	Boron (B)	nt'd)	0,00	000			0.00	0 0.02	000	000	90.0	0.05	000	0 0.17	0.46	0.0			_
(a) 1	Fluo- ride	12e)(Co	0.01	0.01			0.01	0.00	0.00	0000	0.00	0.00	00.00	0.00	0.00	0.00			-
parts pr	rrate (NO <sub>3</sub> )	BEND (Sta. 120(Cont'd)	0.0	0.00			0.00	0.01	0.0	0.01	0.0	0.00	0.0	0.00	0.5	0.00			- 00
nbe		AT BEN	2.6	2.4			2.3	0.11	3.2	3.5	2.5	3.5	3.5	3.5	3.5	0.11	_		
ts in	Sul - fate (SO <sub>4</sub> )	RIVER	6.7	3.3			0.08	3.8	3.8	3.8	3.8	0.06	5.8	1.9	1.9	0.25			
canstituents	Bicar- banate (HCO <sub>3</sub> )	AMENTO	1.07	67	56 0.92	09	62	1.05	<u>68</u> 1.11	64 1.05	1.05	1.05	64 1.05	1.05	1.05	0.97			
Mineral car	Carban- ate (CO <sub>3</sub> )	SACE	0.00	0.00	000	000	000	000	0000	0.00	0.00	0.00	0000	0.00	0000	0.0			
Min	Potas- sium (K)		1.4	1.8			1.1	1.8	1.8	1.8	1.8	1.8	1.5	1.5	1.5	1.6			1
	Sodium (Na)		7.3	7.4	6.1	5.9	6.1	7.2	7.2	6.9	6.9	6.8	6.9	6.8	6.7	6.7			
	Magne- sium (Mg)		3.6	4.5	4.0	3.9	4.0	4.6	4.5	3.4	4.1	4.6	5.4	4.4	4.6	6.3			] ;
	Calcium (Ca)		12	11 0.55	9.6	10	11 0.55	0.50	11 0.55	12	10	0.50	9.6	10	0.50	0.50			1
	*Hg 4		7.0	7.3	7.1	7.1	7.1	7.0	7.1	6.9	6.9	6.9	7.5	7.1	7.4	7.2			
	conductance (micramhos at 25°C)		131	132	106	111	911	128	118	123	120	777	119	118	119	122			
	Dissalved oxygen ppm %Sat											- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1- 1-							
	Discharge Temp in cfs in PF	AVERAGE MEAN DAILY	8360	9830	29,900	28,850	13,650	10,000	8860	9500	0796	9350	9770	8620	8210	9200			
	Date ond time sompled	1957	4/20-30	5/1-17	5/18-19	5/20-21	5/22-31	6/1-15	6/16-30	7/1-10	7/11-20	7/21-31	8/1-15	8/16-31	6-1/6	9/26-30			

a Iran (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{QO}{QOO}$  except as shown. D Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Laboratories.

Mineral analyses made by USGS, Quality of Worer Branch (USGS), Pocific Chemical Consultant (PGC), Metropalitan Water District (MWD), Los Angeles Dept. of Water Branch (LADPH), City of Los Angeles Dept. of Pub Health (LADPH), Laboratorial Consultant of Water Resources (DWR), as indicated. f Field pH except when noted with # . The state of the ANALYSES OF SURFACE WATER IMBLC 19-14

CENTRAL VALLEY REGION

	Appropriate	by		ເນຕ	USUS	Unite	USGS	Sprn	Socu	SOCO	USGS	ເລຣນ	USGS	USGS	6,000
	Coliform	MPN/ml													
	T L	ity Ity In ppm													
	9	N.C.		0	0	0	0	0	0	~	9	0	0	0	0
_				147	27	917	212	55	쟋	59	1,7	29	52	97	9
	Per	d aod –		<i>ā</i>	21	22		27	22		22	21	77.	23	ನೆ
_	Total Ois-	solved salids in ppm		103	91.6	26	101	26	116	117	93	106	108	56	100
		Other constituents		Fe 0.02; Al 0.05	Fe 0.08; Cu 0.00 Zn 0.11	Fe <u>0,04</u> ;Cu <u>0,00</u> Zn <u>0,14</u>	Zn <u>0,04</u>	Fe 0.03:Ju 0.00 Zn 0.14	Fe 0.04; Cu 0.02 Zn 0.07	Cu <u>0.03;</u> Zn <u>0.07</u>	Fe 0.04; cu 0.03	Fe 0.05;Cu 0.05 Zn 0.05	Fe <u>0,02</u>	Fe <u>0,04</u>	Fe <u>0.02</u>
		Silico (SiO <sub>2</sub> )		25	55	77		77	27		기	138	88	না	27
	uoIII	Baron (B)	(P)	000	0.37	0.00		0000	0.05		0.01	0.05	0.09	0.07	0.08
million	Der million	Fluo- ride (F)	(Cont.d)	0.01	0.00	0.0		0.01	0.00			000	0000	0.00	000
15	equivalents	Ni- trote (NO <sub>3</sub> )	.a. 12c	0.0	0.01	0.02		0.02	0.01		2.2	0.01	0.0	1.0	0.0 0.01
	Ainbe -	Chla- ride (CI)	BEND(Sta.	2.5	4.0	3.8		3.4	0.11		4.5	0.11	0.11.0	3.8	3.6
2	- 1	Sul - fate (SO <sub>4</sub> )	RIVER A'	0.10	12 0.25	5.8 0.12		8.1	9.6		0.23	0.23	4.8	6.7	5.8 0.12
constituents		Bicar- bonate (HCO <sub>3</sub> )	SACRAMENTO RIVER AT	68	59	62	56	1.05	1.11	1.11	0.82	1.11	76	09	1.15
Mineral co		Corbon- ote (CO <sub>3</sub> )	SACR	00.0	0.00	0 0	0000	0000	0 000	0.00	0.00	0000	0000	000	0000
Ž		Potas- sium (K)		1.7	1.6	1.4		0.03	1.6		1.5	1.5	1.9	1.7	1.0.0 0.04
		Sadium (Na)		7:1	6.7	6.5	5.5	6.4	7.1	$\frac{7.2}{0.31}$	6.1	7.1	8.1	6.7	0.32
		Magne- sium (Mg)		0.50	6.3	4.6	4.3	5.5	5.2	7.1	4.1	6.3	77.0	4.4	0.45
		Colcium (Ca)		8.8 0.44	0.50	111	11 0.55	11 0.55	13	12	0.60	12 0.60	12 0.60	0.55	0.55
	*	H 4		6.8	7.2	7.3	7.2	7.3	7.4	7.1	6.8	8.3	7.6	7.0	7.3
	Specific	(micromhos at 25°C)		123	122	123	121	127	131	776	121	137	14.3	124	135
		1 5													
		Oxy.													
	)- 0	E 0 C	43			0		0	0	0	0	C	0	0	0
	9	in cfs in oF	AVERAGE MEAN DAILY	7270	9200	0656	21,300	10,190	8790	0606	16,880	и,730	8700	16,070	15,060
		ond time sompled	1957	9/10-25	9/26-30	10/1-12	10/13	10/14-31	11/1-10	11/11	11/12-14	11/15-30	12/1-15	12/16-22	12/23-31

o Iron (Fe), oluminum (AI), assenc (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents

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CENTRAL VALLEY REGION

		Anolyzed bye			5550	0363	USGS	USGS	USGS	USGS	USGS	nscs	USGS	USGS	Usus	U36 <b>S</b>	sprn	50° U		
		ity MPN/mi																-		t
	- Inl	tty Meddu																		
		000	j E d d		0	0	0	0	0	0	m	0	0	0	0	п	0	24		
		1	boud		28	778	52	719	68	65	12	173	149	26	62	58	58	19		
-	Per	S ium			56	26	25	25	26	25	19	26	777	23	23	77	23	- 23		
		solved solids in pom	0		120	117	122	128	119	116	96	95	96	103	120	125	112	114	 	
		Other constituents			Fe 0.02		Fe 0.07	Fe 0,04	Fe 0.03	Fe 0.03	Fe 0,26	Fe 0.06 Zn 0.03 a	Fe 0.06; Cu 0.01 Zn 0.04 a	Fe 0.05; Cu 0.07	Fe 0.01	Fe 0.03	Fe <u>0,03</u>	Fe 0.02;Al 0.04 Zn 0.03; Cu 0.01 a		
		Silico (SiO <sub>2</sub> )	•		31		35	প্ল	37	20	ध	গ্ল	. 881	25	8	27	128	156		
6	llion	Boron (B)		874	0.20		0.16	0,18	0	0.11	0.04	00.00	0000	000	0.13	0.07	90.00	000		
	per million	Flug-	-	ر د د د	0.01		0.03	0.02	0.0	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	 	
ports per million	equivalents	Ni- trate	(NO3)	S CITY	0.02		0.03	0.02	0.02	0.02	1.2	0.01	0.0	0.01	0.01	0.0	0.0	0.00		
١	edniv	Chlo-	(5)	AT BUTTE	0.50		7.0	7.0	6.0	6.0	6.0	3.0	0.11	0.13	5.5	4.5	0.11	0.11		
, ci		Sul - fate		RIVER	5.8		9.6	8.6	7.7	5.8 0.12	4.8 0.10	2.5	5.2	0.11	9.6	13	7.7	0.31		
constituents		Bicar-	(HCO3)	SACLAMENTO	84 1.38	56 0.92	1.13	1.36	89	86	51	64 1.05	1.08	1.23	1.34	70	76	72		
Mineral cor		Carbon-	(603)	SACI	000	0.00	0.00	00.00	0000	0000	000	0.00	00.00	00.00	0.00	0000	0000	0000		
Mi		Potas- Sium	3		2.0	1.9	1.8	1.8	1.7	1.6	1.4	1.4	1.7	1.9	2.0	1.8	2.1	2,1		
		Sadium (Na)			9.7	8.2	9.1	10	11 0.48	100	5.3	7.4	7.4	7.9	8.9 0.39	8.9	8.2	8.6		
		Magne- Sium	(Mg)		5.6	3.8	6.0	7.1	8.6	6.7	07.0	3.9	4.6	5.7	6.6	6.2	5.6	6.9		
		Calcium (Ca)			0.70	13	13	0.70	13	15	10	11 0.55	12	13	0,270	13	0.70	13		
	,	Ή.	h-1		7.0	6.7	6.9	6.9	7.3	7.3	7.0	7.0	7.0	6,8	7.4	7.4	7.6	7.2		
	Specific	(micromhos			159	137	158	174	168	165	106	127	135	161	162	139	148	243		
		oxygen	ppm %Sat																	
	ŀ	de leg		EI .														~		
		in cfs in of		AVERAGE MEAN DAILY	5075	12,600	0669	5565	7003	2000	39,040	45,843	23,200	12,610	6178	8131	7084	8157		
	Dote	ond time sompled		1957	1/1-7,	1/14	1/15-22	1/23,26-	2/1-10	2/11-23	2/24-28	3/1-7	3/8-19	3/20-31	4/1-14	4/15-22	4/23-30	5/1-18		

o Iron (Fe), oluminum (AI), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Gr), reparted here as  $\frac{0.0}{0.00}$  except as shown.

b Determined by addition of analyzed constituents

c Gravimetric determination,

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Colif. Dept. of Public Health, Division of Laborateries.

e Mineral analyses made by USGS, Quality of Worler Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Las Angeles Dept of Pub Health (LADPH),

Long Beach Dept of Pub Health (LBDPH) or United States Bureau of Rectamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when noted with #

#### TABLE B-JL ANALYSES OF SURFACE WATER

Conceptuation of the state of t

CENTRAL VALLEY REGION

	Anolyzed by e		CDCD	Usas	USGS	USGS	USGS	Usidis	UJGS	505.0	USGS	Uses	USGS	USGS	Cúch	
-	bid - Coliform ity MPN/mi															_
]	nese bid aCO <sub>3</sub> ity N.C. ppm															 $\dashv$
	Hordnese os CaCO <sub>3</sub> Total N.C. ppm ppm	<b>.</b>	0 017	0 67	20	51 0	20	0 67	0 67	0 87	0 67	0 67	0 1	0	0 97	
	cent mui		25	777	25	25	<del>2</del>	25 L	77	25 4	77 77	24,	23 51	29 50	25	
Total	solved solids in ppm		81	76	66	96	92	109	971	107	106	105	107	116	109	
	Other constituents		Fe <u>0,10</u>	Fe <u>0,06</u>	Fe 0,10	Fe 0.03	Fe 0,02;Cu 0,02 Zn 0,05	Fe 0.02	Fe 0.02	Fe 0,01	Fe 0.01	Fe 0,01	Fe 0,01	Fe 0.01; Al 0.03 Zn 0.04a	Fe <u>0.02</u>	
	Silica (SiO <sub>2</sub> )		প্র	35	22	57	126	27	29	27	188	56	27	77	53	
illian	Baran (B)	(Cont.	900	0.02	0.01	0,01	0.14	0.07	0.04	0.06	0.07	0.05	00.00	01.0	0.04	
per million	Flua- ride (F)	a. 97a)	0.01	0.01	0.07	0.0	000	0.01	0.01	0.01	0.01	0.0	0.01	0.01	0.01	
ports per millian equivalents per mil	Ni- trote (NO <sub>3</sub> )	BUTTE CITY(St.	0.02	0.02	0.02	0.0	0.00	1.2	0.02	0.03	0.02	0.02	0.02	0.00	3.5	
g vinge	Chio- ride (CI)		2.8	3.4	3.3	3.6	0.11	3.5	3.6	3.4	3.4	3.3	4.0	0.10	0.14	
Ë	Sul - fate (SO <sub>4</sub> )	RIVER AT	01.0	6.3	4.4	4.4	5.8	01.0	0.09	0.10	5.8 0.12	5.4	7.7	6.7	8.1	
constituents	Bicor- banote (HCO <sub>3</sub> )	DENTIC PI	56.0	1.07	277	1.18	70	1.16	1.13	1.11	1.11	1.13	68	1.16	0.92	
	Corbon- ote (CO <sub>3</sub> )	SAURA	0.00	0000	00.0	00.00	000	000	0000	0000	000	0000	0000	00.00	0000	
Mineral	Patas- C sium (K)		0.05	2,1	2.0	2.0	0.05	0.05	1.7	1.7	1.7	1.6	1.7	1.6	2.1	
	Sadium (No)		0.29	0.32	8.1	0.36	7.8	8.0	0.33	0.33	0.33	0.33	0.32	0.33	7.3	
	Magne- sium (Mg)		3.8	4.6	5.0	5.1	5.5	5.2	5.2	5.0	5.2	5.2	5.7	6.3	5.1	
	Calcium (Co)		0.50	12	12 0.60	12	11 0.55	0.55	0.55	0.55	111	11 0.55	11 0.55	9.6	10	
	* Hq. 4		7.3	6.9	7.1	6.9	7.1	7.6	7.1	6.9	7.7	7.3	7.1	6.7	7.0	
100	conductance (micromhos of 25°C)		107	126	134	139	126	134	134	133	132	132	134	133	131	
	Oisso oxyg															
	Temp in of	(L)														
	Dischorge Temp in cfs in 9F	AVERAGE MEAN DAILY	28,367	15,780	9039	0989	711/6	6168	6819	9999	0119	6204	6197	12,167		
	Dote and tims sampled	1957	5/19-21	5/22-31	6/1-17	6/18-30	7/1-10	7/11-20	7/21-31	8/1-11	8/12-20	8/21-31	9/1-15	9/16-27	9/28-30	
										R-15						

o Iron (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 00 except as shown.

Determined by addition of analyzed constituents

c Gravimetric determination.

e Mineral analyses made by USGS, Duality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWO), Las Angeles Dept. of Water Branch (LADPH), City of Las Angeles Dept of Pub Health (LADPH), Ly of Water Beach Dept of Pub Health (LADPH) as undicated d Annual median and range, respectively Calculated from analyses at duplicate manthly samples made by Colif. Dept af Public Health, Division of Labaratories.

## ANALYSES OF SURFACE WATER

#### ANALYSES OF SURFACE WATER TABLE B-11

CENTRAL VALLEY REGION

	Analyzed bye		nsgs	USGS	nscs	USGS	uses	USGS	0.363		
	bid Coliform										
	Ppm Co					·······					
<u> </u>	N.C		0	0	0	0	0	п	0		
			67	1	53	52	56	9	52		
	Sod -		77	22	- 23	24	777	53	63		 _
Tatal	Solved solids in ppm		930	82 <sub>b</sub>	103°	111°	123°	119°	108°		
	Other constituents		Fe <u>0.02</u>		Fe 0,02	Fe 0.00	Fe 0.02	Fe 0 <u>.02</u>	Fe 0.08		
	Silico (SiO <sub>2</sub> )	ont.)	52	2	21	53	31	32	158		
llion	8	87a)(Cont.)	0	80.0	00.00	11.0	0.05	0.03	000		
million per million	Fluo- ride (F)		0.01	0.0	0.0	0.00	0.00	0.0	0.01		
		BUTTE CITY(Sta.	0.0	1.9	1.4	0.02	1.4	0.00	0.00		
ports pe	Chlo- ride (C!)	AT BUTTE	5.0	4.5	5.5	4.3	8.0	8.0	3.0		
<u>=</u>	Sul - fate (SO <sub>4</sub> )	RIVER A	4.8 0.10	0.10	5.8	5.8 0.12	2.9	8.6	9.6	-	
constituents	Bicor- banate (HCO <sub>3</sub> )	SACRAMENTO	1,08	56.0	1.11	1.20	75	72	68		
1	Corban - 8	SACE	0000	0000	000	000	00.00	000	0000		
Minerof	Patos- C sium (K)		1.9	7.000	2.0	1.9	1.9	1.8	1.7		
	Sodium (Na)		7.4	5.0	0.33	0.35	0.36	8.5	0.32		
	Magne- sium (Mg)		6.3	5.8	7.5	77.0	5.7	6.1	67.0		
	Calcium (Ca)		9.7	07.0	8.8	0.60	13	0.70	0.55		
	F 4		6.9	7.0	6.8	7.2	6.9	7.2	7.0		
	conductonce (micromhos of 25°C)		133	88.5	277	7777	161	161	139		
	Dissalved oxygen ppm %Sot										
	Temp in of	(2)	10		0						
	Discharge Temp in cfs in aF	AVERAGE MEAN DAILY	10,245	21,400	970,11	9680	7057		†1899 -		
	Dote and time sampled	1957	10/1-5, 65	10/13-14	10/15-31	11/1-13	11/20-30	12/1-4	12/18, 22- 31		

o Iron (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as OOG except as shawn.

b Determined by addition of analyzed constituents c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Laborateries.

e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Power & Power (LADWP), City of Los Angeles Dept. of Pub Health (LADPH),

Lang Beach Dept. of Pub Health (LBOPH) or United Stat read of Reclamation (USBR) or State Department of Water Resaurces (DWR), as indicated.

Sonsulton (FCC), Metropolion Wolst District (MWD), los Angeles Hapl ist Wutst & France (LATIWE), Elly of Los Angeles Hapl of Fulk Haples (LATIME). ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Anolyzed by e		nses	0.808	uses	USGS	asos	USGS	USGS	USGS	usos	USGS	uses	nsgs
		Caliform d MPN/mi											20 Median 23	Max. 7,000	Min. 0.21
		Pid -		~	6	2	~	20	7	2	-	9.0	20	5	\$
		200 N M M M M M M M M M M M M M M M M M M		0	0	<b>a</b>	0	0	7	0	0	0	0	6	
		As Co Total Ppm		38	3	39	7	32	51	50	52	54	50	141	50
		sod -		<b>ħ</b> Z	2 <sup>t</sup>	13	14	13	17	26	38	30	20	큐	23
	Total	solids in ppm						52				115			
		Other constituents						Po <sub>tt</sub> 0.00 m Fe 0.03 Al 0.13 Cr 0.01 Zn 0.02			0.00	Fe 0.01 A1 0.02			
		Silico (SiO <sub>2</sub> )		out.	01	\01	01	17	N	10	VOI.	퓠	81	<del>- 24</del>	<u> </u>
	illion	Boron (B)		0.02	0.12	90.0	0.00	0.3 0.00 17	0.07	0.15	0.16	0.18	0.12	0.15	0.16
	ports per million	Fluo- ride (F)	A 11					0.02				0.00 0.01			
			(STA					0.0				00.0			
CENTRAL VALLET REGION	equivolents	Chlo- ride (Cl)	AT DELTA	4.5	5.2	2.0	3.1	<del></del> -	3.3	6.2	8.0	9.3	5.2	2.5	4.0 0.11
ALLE	<u>.c</u> .	Sul - fore (SO <sub>e</sub> )						1.0				2.9			<u> </u>
TRAL V.	constituents	Bicar- bonate (HCO <sub>3</sub> )	SACRAMENTO RIVER	146 0.75	1.02	43 0.70	50		1,000	71	82	1.31	1.08	146 0.75	1:11
CE		Corbon – B	SACRAM	000	0.00	000	000	0000	0.00	0000	0.00	0000	0.00	0000	0000
	Mineral	Potos- C Sium (K)		0.00	0.00	0.01	10°0	1	0.00			1.7	'		0.0
l		Sodium (Na)		5.6	6.6	2.7	277	2°4 0°10	4.8 0.21	8.1	15	0.48	5.8	3.1	7.2
		Magne- Sc sium ( (Mg)		5.1	6.7	6.4	6.7	10	8,3	10	10	2.5	- 10		10
		M C													
		Colcium (Ca)		6.8	0.36	5.0	5.5		6.8		VI.	0.45			
		I 4		97.9 7.3	7.6	7.5	7.5	7.3	7.5	7.6	7.6	# <b>6</b>	7.1	3 7.4	7.5
	Specific	conductonce (micrombos at 25°C)		34.	113	79	90.8	75.7	101	134	149	157	121	86.3	131
		15 1		66	101	93	105	%	66	96	90	107	111	101	124
		Dissolved oxygen ppm %Sc		12.3	12.0	10.8	11.6	10.4	9.7	8	9.6	9.6	12.0	11.8	15.3
		Te or		£43	24	84	52	45	62	70	09	68	54	148	∄
		Discharge in cfe		1120	782	2270	1180	3300	672	300	235	235	1660	2810	450
		Date and time sampled	1957	1/15	2/15 1300	3/14	4/10	5/14 1515	6/14	7/16	8/13	9/12	10/9	11/14	12/11

a Iron (Fe), oluminum (A1), areanic (As), capper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here on 200 except as shawn. b Determined by addition of analyzed constituents.

c Gravimetric defermination.

d Annual median and range, respectively. Calculated from analysee of duplicate monthly samples made by Calif. Dept. of Public Health, Divisian of Laborotories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angelee Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with e-

CENTRAL VALLEY REGION

- [		9															$\neg$
		Anolyzed by e			nses	nses	nses	SDSA	nsgs	nsgs	uses	USGS	USOS	USGS	USGS	rses	
		Coliform MPN/mi												Median USGS	Max. 7,000	Min. 2.3	
	1	- pid - hidd u			7	4	20	6	0	#	7	7	#	6	8	04	7
			o E a a		0	0	0	9	0	0	0	0	0	0	0	0	
			Total		55	09	50	99	50	3	45	52	#	641	52	茎	
	à	- pos			26	56	22	19	22	24	26	22 .	2ф	21	23	24	
	Total	solved solved	م						93				85				
		Other constituents	Ü						Cu 0.02 Zn 0.03 POu 0.05 Zn 0.03				24 Pe 0.03 Al 0.07				
ŀ		A Silico		ন্ন	<b>N</b> 1		<b>N</b> I		25		48						_
	on nillion	Boron (B)		(STA.	0.07	500	0.07	0.06	0.02	0.08	0.01	0.00	0.020.00	0.03	0.05	70.0	
	per million	Fluo-	$\rightarrow$						0.0000.01				0.8				
	ports per million volents per mil	Ni- trate	(NO <sub>3</sub> )	N CIT					0.00				0.02				
CENTRAL VALLEY REGION	ports p	Chlo- ride	(CI)	HAMILTON CITY	5.0	7.2	3.2	4.8	0.08	3.0	2.8	2.8 0.08	3.3	0.11	4.5 0.13	4.0 0.11	
VALLE	Ē	Sul - fore	(%05)	NEAR					4.8				1.5				
TKAL	constituents	Bicor - bonate	HCO <sub>3</sub> )	RIVER	1.41	1.34	1.10	1.25	1.15	1.10	1.08	1.08	1.07	1.08	1.15	59 0.97	
3		Corbon-	(°CO3)	SACRAMENTO	000	0.00	000	000	0.00	0.0	000	0.00	000	000	0.00	00.0	
	Mineral	otos- sum		SACRA	1.6	1.5	70.0	1.2	0.03	1.3			10.0		1	<u> </u>	
		Sodium P (No)			0.40	0. E	7.0	0.33	0.30	6.9	2.1	6.8	6-7	5.9	7.1	6.5	$\dashv$
		Mogne- Sa			200	0.540	5.5	7.9	0.40	3.9	110	o	4.7 0.39 0.	0	10	اة ا	$\dashv$
		o Mo	5		13	13	0.55 0	0.70	12 0.60	0.60			0.50	-			$\dashv$
-		Colcium (Co.)	- 1					_					_				4
ŀ		P S CO	•		7.3	7.7	7.5	7.5	7.5	7.5	7.7	7.5	7.3	7.3	7.3	7.3	-
	Specifi	conductonce (micrombos of 25°C)			150	191	133	151	129	123	120	118	120	128	132	118	
			%Sot		95	100	96	46	96	103	86	93	87	76	76	96	
		}	mdd		12.1	11.2	10.8	6.6	9.5	0.01	8.6	4.6	8.7	6.6	10.2	л. rt	
		Temp in OF			14	51	51	59	19	63	09	59	09	95	弘	£3	
		Dischorge in ofs			2070	1420	20, 400	0864	7950	8220	7580	6620	Otth9	10,400	10,500	18,200	
		Dote ond time sompled		1957	1/11	2/14 0835	3/12	1050	5/7.	6/11	0160	8/13	9/17 0915	10/23	11/13	12/19 1430	

a Iron (Fe), aluminum (AI), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromlum (Cr), reported here as 20 except as shawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Loe Angeles Dept of Pub. Health (LBDPH),
Lang Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

SURFACE WATER

LOS Angeles Dept. of Wides & Power (LADWP), City of Los Angeles Dept of Pub Health (LADPH).

CENTRAL VALLEY REGION

		Anolyz by e			usgs	uses	USGS	USGS	uses	nsos	uses	USGS	usos	USGS	USGS	usos	
		Coliform MPN/mi												2 Median 2.3	Max. 620	Min. 0.045	
	1	Piq -			25	9	6	7	3	9	#	-	2	7	6	2	
		000	Z E		9	0	0	0	0	0	0	0	0	0	0		
		Hord Os C	PPG		48	50	4	<b>.</b>	4	51	142	#3	42	41	34	52	
		P P P			25	36	25	23	56	ส	25	25.	22	22	77	26	
	Totol	solved solids	م						8				ౙ				
		Other constituents						21.0	P. 0.26 A1 0.16 Cr 0.03 Cu 0.02				PO 0.10 Pe 0.07				
		Silice (SiO <sub>3</sub> )				-			57				126				
	High	Boren (8)			0.01	0.07	0.11	8	0000	0.03	5	0.05	0.0	0.03	ठ	0.13	
	ports per million volents per million	Fluo- ride	Œ	12			-		0.01				0.00 0.01				
	6		$\rightarrow$	K.					0.0	-			962				
CENTRAL VALLEY REGION	ports p	Chlo- ride	_	AT KESWICK STA.	2.3	3.3	2.6	2.8	0.06	2.2	2.3	0.08	0.06	2.0	3.8	3.0	
ALLEY	ē	Sul - fote	3	RIVER A					5.8			1	4.8	<u> </u>			-
AL V						<b>4</b> -	70	99		62	96	98	10	986	62	13	-
E L	conetituents	- Bicor - banote		ENT	0.02	1.21	67	ļ.	61	ļ-i	0	0	0	0	i i	l-i	
	Mineral CC	Carbon-	(°00)	SACRAMENTO	0.00	0.00	00.00	0000	000	0.00	0.00	000	0.00	0000	00.0	0.00	
	Min	Pates-	- 1		0.05	1.6	3.0	1.0	1.3	1 0 0 0			20.0			1.7	
		Sp dium P	_		7.8	8.5	7.4 0.32	7.2	0.30	6.5	6.4	6.6	5-3	5.2	6.7	0.37	$\dashv$
			_		시승						90	90		10	0	ω o'	-
		Mogne	Š		5.0	5.6	1.0° t	5.5	0.33	5.7			0.34				
		Calcium (Co)			11 0.55	0.55	10	0.55	10	0.55			0.50				
		ĭ	4		6.5	7.2	7.3	7.3	7.7	7.3	7.3	7.1	7.3	7-1	7.2	7.2	
	Specific	conductonce (micrombos at 25°C)			139	134	124	124	116	113	112	114	109	110	119	134	
		- 1	%Sot		90	95	8	102	102	93	91	96	96	98	96	101	
		Dissolved	Edd		10.8	10.4	11.2	11.3	11.5	10.3	10.0	9.6	9.8	10.5	9.6	10.9	
					£5	53	84	25	20	52	52	09	59	55	09	η <sub>5</sub>	
		Dischorge Temp			3840	3870	6350	3240	8980	8540	09116	8240	7220	7680	9070	8230	
		Dote ond time sompled		1957	1/15	2/15 1100	3/15	4/10	5/14 1430	6/14 1310	7/15 1645.	8/12	9/10	10/7	11/13	12/10	

a Iron (Fe), aluminum (AI), presenc (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 100 except as ehoem. Determined by addition of analyzed constituents.

c Gravimetric determination.

f Field pH except when noted with a

d Annul median and range, respectively. Calculated from analyses of duplicate manthty camples made by Calif. Dept. of Public Health, Divinian of Laboratories.

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ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL, VALLEY REGION

		Analyzed by a			USGS	USGS	nses	USGS	USGS	uscs	U SGS	USG S	USGS	nses	USGS	USGS
		bid - Coliform												40 Hedian 62	25 Max. 7000	20 Min.
	Tur-	- piq			#	0	30	20	27	35	20	15	20	3	25	20
		Hardness as CaCO <sub>3</sub>	Total N C ppm ppm		0	0	0	0	0	0	0	7	0	0	0	0
			Total ppm		†19	9	55	78	63	26	80	81	70	<b>4</b>	52	09
	Por	sod -			27	56	21	21	32	29	0+1	35	tre	23	21	27
	Total	solved solids	بر م م ب						125				1112			l
		Other constituents							Fe C.06 A1 0.08 Pb 0.01 Zn 0.04 Po <sub>1</sub> 0.05 a				7 PO <sub>1</sub> 0.15 Fe 0.04			
		Silico	(Sin		<b>=</b>	~I	e-1	ω <b> </b>	2 24	=1	91	퓠	6 27	~~	9	2
	million per million	Boran		<u>1</u>	to 0	0.01	0.11	0.08	10.09	0.0	0.26	10°C	10.06	0.12	00 0	0.26
	per mil	Fluo-		STA.	_				0.0				0.0			
	parts per volents	N - 1	(NO3)	NING					0.01				0.01			
CENTRAL VALLEY REGION	ports p equivolents	Chlo-	(5)	KNICHTS LANDING	6.11	8.0	2.6	7.3	7.8	7.7	9.8	10	8.8	4.8 0.14	0.14	0.25
	<u>e</u>	Sul -	(50,	- 1					13				14			
PRAL VA	constituents	Broon	(HCO3)	VER AT	1.54	3.50	68	1.56	38 1.44	1.5	128	36	100	58	1.05	76.
CEN		Carbon-	(co <sub>3</sub> )	NTO R	0.00	00 00	0000	0 00	0000	0000	0.00	00.00	0000	0.00	0 0	00.0
	Mineral		(X)	SACRAMENTO RIVER	1.6	1.4	1.6	1.3	1.1	10,4			1.9			
		Sodium	(NO)	- 6	11	11	7.1	9.8	14 C.61	15	1.17	20	17 0.74	6.4	6.5	10 0°411
		Mogne-	(Mg)		7.1	7.4 0.51	7.0 0.64	8.0	6.2	9.4			7.9			
		Colcium	(Co)		14	15 0.75	9.7	0.90	15	15 0.75			15 0.75			
		I	C <sub>k</sub>		7.7	707	7.5	7.5	7.5	7.8	7.9	7.0%	7.7	7.5	7.3	7.3
	Specific	conductance (micromhos	5		174	179	129	187	188	199	273	233	.213	126	128	154
			%Sat		95	100	98	96	88	95	100	46	93	96	93	92
		Dissolved	₩dd		11.8	10.6	10.6	ħ•6	8.7	8.1	8.6	2°3	0.	0°6	10.1	10.7
		Temp in OF			113	55	54	62	62	75	74	73	74	19	51	1 <sub>1</sub> 8
		Discharge Temp		Mean Daily	7850	5300	22,700	5020	10,200	6120	5120	6010	7240	22,800	17,500	21,700
		Dote ond time		1957	1/14	2/18	3/11	4/15	5/13	6/21	7/15 0845	8/19 0920	9/10	10/16	11/18	12/23

a Iran (Fe), aluminum (A1), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

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Man mode by USGS, Quenty of Woter Dronch (USGS), pecific Chemical Consultant (PCCS, March District (MWD), Los Angeles Department of Woter Resources (DWF), as indicated best man moted with a Moter Despisor Woter Department of Woter Resources (DWF), as indicated best when moted with a

CENTRAL VALLEY REGION

	Anolyze bye		5577	13.5	555.0	Upda	UCCS	0.363	Stru	0.56.5	eren .	0.56.5	0360	Ussi	0363	uses	5550	5500	
	Coliform MPN/ml																		
	Pid Pid Pidd u																		
	Hordness os CoCO <sub>3</sub> Totol N.C. ppm ppm		0	0	0				٦	0	0	0		0	0		0	·	
_			99	1 71	99	17.	42	8 45	777	26	53	2 20	02	5 67	3 65	02	2 775	- 52	
	cent cent cent ds sod		- 28	5 31	33	5 29	3 25	5 23	22	23	1 22	25	25	3 26	28	33	25	52	-
Toto	Solved solids in ppm		126	11/6	130	11,6	14,3	98	178	100	776	125	132	133	134	11,5	103	106	1
	Other constituents		Fe U.OL	Fe 0.01	Fe 0.08	Fe 0.03	Fe 0.00	Fe 0.15	Fe 0.16	Fe U.07	Fe 0.10	Fe 0.04	Fe U.02	Fe U.02	Fe U.07	Fe 0.05; As 0.15ª	Fe 0.20	Fe 0.12	
	Silica (SiO <sub>2</sub> )		<u> </u>	133	27	32	3.	91	십	55	[33	21	윘	윘	8	27	[3]	27	
on	Boron (B)	-	0.21	0.21	0.20	0.17	0.08	20.0	0.01	0.02	0.09	0.00	0.17	0.25	0.17	0.21	0.20	0.19	
r million per million	Fluo- ride (F)	NDING(Sta. 11	0.01	0.1	0.03	0.03	0.01	0.0	0.02	0.0	0.2	0.01	0.1 0.0 <u>1</u>	0.0	0.0	0.1	0.01	0.0	
ports per million equivolents per mill	Ni- trate (NO <sub>3</sub> )	LANDING	0.0	0.5	0.02	0.0	0.0	0.05	1.1 0.02	0.7	0.6	0.0	0.9	0.9	0.6	0.0	0.6	0.0	3
equi	Chlo- ride (CI)	CHTIS	6.5	9.0	9.5	10	9.1	0.12	0.11	0.13	4.1 0.12	7.5	7.0	6.5	8.5	9.0	3.0	0.11	
n s	Sul - fate (\$04)	AT KN	8.6	8.6	12	16	15	9.2	7.3	9.6	7.7	13	9.6	8.6	9.6	19	5.8	7.7	
constituents	Bicar- bonote (HCO <sub>3</sub> )	O RIVE	93	101	75	1.19	98	517	52 0.35	69	65	986	93	92	86	93	59	68	
Mineral cor	Corbon- ofe (CO <sub>3</sub> )	ACAMMAI	000	000	000	000	000	0.00	0.0	0.00	00.00	0000	000	0.00	0000	0.00	0000	0.00	
Min	Polos- sium (K)	की	1.6	1.7	1.7	1.6	1.5	0.03	0.03	1.2	1.3	1.2	1.8	1.7	1.7	0.05	0.03	0.03	
	Sodium (No)		12	15	13	14 0.61	13	6.5	5.9	7.8	6.8	11	11	0.13	12	16	6.7	0.35	
	Magne- sium (Mg)		7.5	8.1	6.7	7.5	0.83	0.35	0.33	6.9	6.2	8.5	7.3	7.2	7.3	8.5	10° P	6,0	
	Calcium (Co)		0.70	15	13	16	16	0.55	111	11 0.55	111	0.70	0.80	15	0.70	0.70	9.6	0.55	
	* Hd 4		7.1	7.2	6.8	7.0	7.8	7.7	7.4	7.5	7.4	7.5	7.4	7.3	7.4	7.2	7.7	23	
9	conductonce (micromhos of 25°C)		186	506	131,	208	205	119	118	136	130	181	189	183	187	213	117	135	
	Dissolved oxygen ppm %Sot																		
-	ge Tem	60																	-
	Dischorge Temp in cfs in of	AVERAGE	DAILY 6180	6760	9730	0869	5320	1600	22,500	23,340	20,610	13,220	8520	0619	1750	7930	17,380	17,300	
	Date and time sampled	1957	1/1-9	1/10-11,	1/15-19	1/20-31	2/1-51	2/22-24	2/25-28	3/1-14	3/15-22	3/23-31	1/1-10	14/11-20	L/21-30	5/1-18	5/19-22	5/23-28	

o Iron (Fe), oluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown. b Determined by addition of analyzed constituents

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e. Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCG), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Angeles Dept of Las Angeles Dept of Pub Health (LADPH), Long Beach Dept of Pub. Health (LBOPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated

# ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-11

CENTRAL VALLEY REGION

1		2																		7
		Anolyzed bye		USGS	USGS	nsgs	nsæ	USGS	USGS	USGS	USGS	nscs	nses	nsgs	USGS	USGS	SD SM	uses	USGS	
		Coliform MPN/ml																		
	F 7	- piq ity mbdu																		
		N CO3		0	0	0	0	0	0	0	0	0	0	0	Н	0	н	0	0	
				63	89	29	63	72	7/7	82	83	80	72	52	62	58	147	57	917	
	P	eod –		31	₹	33	35	33	377	36	36	36	33	32	35	28	27	92	55	4
	Total	solved solids in ppm		137	138	132	135 <sup>b</sup>	143 <sup>b</sup>	151	163	161	161	ביור	211	134	122		971	66	
		Other constituents		Fe 0.18	Fe 0.01	Fe 0.02	Fe 0.02	Fe 0.01	Fe 0.01	Fe 0.01	Fe 0.00	Fe 0.02; Al 0.06; Zn 0.05; a	Fe 0.00	Fe 0.05	Fe 0.15	Fe 0.03		Fe 0.00	Fe 0.08	
		Silica (SiO <sub>2</sub> )	3	킹	28	웨	81	88	티	65	81	%]	65	81	23	18		27	81	
	llion	Boron (B)	ं (भूर (प्राक्ताव)	0.26	0.11	0.15	0.16	0.16	0.15	0.18	0.1	0,16	00	0.23	0.14	0.05	0,12	0.04	0.09	
	million per million	Fluo- ride (F)	1 -1	0000	0.2	0.1	0.01	0.01	0.0	0.01	0.01	0.3	0.0	0.01	0.01	0.00		0.0	0.00	
	9	Ni- trate (NO <sub>3</sub> )	LANDING(Ste	0.8	1.6	1.5	1.5	0.02	1.3	1.1	1.0	0.2	1.0 0.02	3.0	2.3	1.1	0.03	0.0	1.7	
	ports p	Chlo- ride (CI)	IS LAND	7.0	9.0	9.5	8.0	8.0	9.0	11.0	1200.34	10	8.5	8.0	12	8.7	0.11	5.7	11.8 0.11	
	5	Sul - fate (SO <sub>4</sub> )	r KNIGHTS	0.31	13	12 0.25	13	17	19	17	17	18	17	12	0.35	12	8.8	9.6	5.8	
	constituents	Bicar - bonote (HCO <sub>3</sub> )	RIVER AT	86	94 1.54	90 1.14	92	96	101	1.90	11.8	116	98	99	74 1.21	75	56 0.92	76	58 0.95	
		Carban- ate (CO <sub>3</sub> )	SACTAMENTO	0000	0000	0000	0,00	0000	0000	0000	0000	0.00	0000	0000	0000	0000	0000	0000	0.00	
	Mineral	Potos- Sium (K)	SACK	0.03	1.8	1.8	1.8	1.7	1.7	1.8	2.0 0.05	2.1 0.05	2.0	2.9	2.3	1.8	1.5	10.0	1.5	
		Sadium (No)		13	17.0	16	0.70	17.0	18	22 0.96	22	21 0.91	17 00.74	12 0.52	02.0	11.0 811.0	6.0	9.7	6.2	
		Magne-S sium (Mg)		6.8	8.0	7.8	6.8	9.0	8.9	10 0.84	0.86	11 0.90	9.0	67.0	7.8	6.8	7.50	6.1	14.5 0.37	7
		Calcium (Ca)		0.70	0.70	0.70	02.0	170 0.70	15	16	0.80	0.70	0.70	0.55	0.60	12 0.60	0.50	13	0.55	
		*Hg 4		7.3	7.2	7.1	7.2	7.3	7.3	7.3	7.3	7.2	7.3	7.2	7.0	7.4	7.5	7.3	7.1	
	Spacific	conductance (micromhos at 25°C)		185	509	186	199	209	219	236	257	250	207	158	161	179	120	158	125	
		Dissolved co axygen (m ppm %5ot																		
		Temp in oF																		
		Dischorge Temp in cfs in 9F	Average Mean Daily	12,830	9250	5830	01/09	6210	0609	5850	6020	7020	7740	7110	12,850	10,360	002,11	18,880	16,330	
		Date and time sampled	1957	5/29-31	6/1-16	6/17-30	7/1-15	1/16-31	8/1-13	8/14-23	8/24/31	9/1-15	9/16-22	9/23/28	9/29-30	01-1/01	ננ/סנ	10/12-16	10/17-19	

o Iron (Fe), oluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chramium (Cr), reported here as  $\frac{90}{0.00}$  except as ehown. D Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculoted from analyses of duplicate manthly samples mode by Colif. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality at Water Branch (USGS), Pocific Chemical Consultont (PCC), Metrapolitan Water District (MWD), Lae Angelee Dept. of Water Branch (LADWP), City of Los Angelee Dept. of Pub. Health (LADPH),
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g Bacch Oces of Fub Hearth (EDSH) or United States Eureburger (PCD), Metropoliton Worst English Worst Recoluted (LADW), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Pub Health (LADPH), City of Los Angelse Dept of Los An

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	Analyze bye		USGS	USGS	USGS	USGS	USGS	USOS	
	Coliform MPN/ml								
	- bid - lty								
	N.C.		0	0	0	0	0	0	
			288	58	59	79	8	53	
	sod -	-	56	56	23	27	56	777	
Total	solved solids in ppm		120	117	117	129	121	106	
	Other constituents		Fe 0.02	Fe U.01	Fe 0.00	Fe 0.00	Fe 0.02	Fe 0.06	
	Silico (SiO <sub>2</sub> )	_	103	3 26	27	52	28	50	
illion	Boron (B)	- <del>-</del>	0.05	0.08	0.07	0.0	0.0	0.03	
per million	Fluo- ride (F)	Cont'd)	0.0	0.0	000	000	000	0.0	
1 = 1	1	3. 14)	0.0	0.3	0.0	0.0	0.0	0.0	
parte pe	Chlo- ride (CE)	KNICHTS LANDING (Sta. 11)	6.8	6.5	5.0	0.21	7.7	5.4	
<u>.c</u>	Sul - fote (SO <sub>4</sub> )	ITS LAN	9.6	8.6	12	11 0.23	1.9	5.8	
constituents	Bicor- bonate (HCO <sub>3</sub> )	AT KNIC	1,21	79	76	85	1.39	70	
rol con	Corbon- ote (CO <sub>3</sub> )	RIVER	000	00.00	0000	0000	0000	0000	
Mineral	Polos-O Sium (X)	RAMENTO	1.5	1.5	1.5	1.5	0.07	1.6	
	Sadium (No)	SACF	9.8	9.6	8.5	11 0.18	0-14	8.0	
	Magne- sium (Mg)		6.2	6.2	6.1	7.1	6.0	5.6	
	Calcium (Ca)		13	13	13	11, 0.70	07.0	2100	
	* E 64		7.2	7.6	7.0	7.2	7.6	7.3	
0.000	conductonce (micromhos of 25°C)		165	160	153	182	161	138	
	Oisso oxy ppm								
	e Temp								
	Discharge Temp	AVERAGE	MEAN DAILY 12,170	01,01	17,560	12,770	10,350	19,340	
	Date and time sampled	1957	10/20-31	ת-ז/וו	11/12-27	11/28-30	12/1-17	12/18-31	

o Iran (Fe), oluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{00}{000}$  except as ehawn. b Determined by addition of analyzed constituents

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ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

	_ 1													
	Analyzed by e		USGS	USGS	USGS	USGS	uses	uses	USGS	uses	nsgs	nsgs	usgs	USGS
	Caliform MPN/mi											Median 230	Max. 7,000	Min. 6.2
1 2	- pid - pid		10	2	7	9	20	10	9	2	#	2	5	4
	N COS		-	0	0	2	0	<b>a</b>	0	0	0	0	0	
	Hordness os CoCOs Tatal N C ppm		50	64	64	56	43	54	04	£43	142	42	45	50
D o	sod -		25	56	24	21	25	21	26	25	21	21	26	25
Total	Salved solids in pom						98				83			
	Other canstituents						Fe 0.34 A1 0.21 Gr 0.01 Gs 0.04 Zn 0.09 POt 0.05			01.0	Fe 0.05 A1 0.11			
	Silica (SiO <sub>2</sub> )					\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	26	-11	+1	<b>+1</b>	25	01	<u> </u>	10
llian	Baran (B)	28	0.01	10.0	90.0	90.0	0.00	0.01	ठ	10.0	0.06	00.00	0.24	0.15
militon per million	Flua- ride (F)	[X					0.0	•			0.01		·	
	rote (NO <sub>3</sub> )	S					0.0				0.00			
parts p	Chio- ride (CI)	NEAR REDDING (STA	0.08	3.5	3.2	2.6	00.0	0.07	2.1	1.4	2.3	0.08	3.8	2.0
<u> </u>	Sul - fate (SO <sub>4</sub> )			•			6.7				3.8			
constituents	Bicor - S bonate (HCO <sub>3</sub> ) (	TO RIVER	60.08	25	1.08	1.08	1,000	00.1	62	53	96.0	59	1.05	70
- 1	Carban B	SACRAMENTO	0.00	0.00	0.00	0.00	00.00	00.0	0.00	00.00	0000	000	000	000
Mineral	Patas- Co	- S	1.5	1.5	10.0	10.0	1.1	1.4			1.5	!		0.047
	Sodium (No)		7.9	8.6	7.4	7.3	6.9	6.6	6.4 0.28	6.4	5.3	5.2	7.1	0.35
	Magne- Sa Sium (Mg)		0.40	20 44 0	6.1	7:1	4.3	7-1	0	-10	3.4	0	0	°
	Colcium Mc		0,00	0.55	9.6	0.55		0.50			0.55			
-	i		<u> </u>		<u>ن</u>			2	m	- 2		- 2	- 5	7
	0		9 2.0	7.5	~	124 7.3	117 7.2	114 7.	112 7.3	111 7.2	108 7.7	109 7.2	121 7.2	134 7.2
S. C. C.	conductonce (micromhas at 25°C)		136	134	126	12	=======================================	п			10	71	12	
	1 6 1		98	100	96	106	103	66	66	106	115	122	91	111
	Dissalved axygen ppm %Sc		10.8	11.3	11.11	11.7	11.4	11.0	11.0	10.6	11.5	12.2	9.6	12.0
	Temp In aF		52	50	8 +	52	52	52	52	09	09	09	95	ης
	Discharge Temp in cfs in aF		3800	2690	6390	2580	9270	7720	0956	8320	6780	7430	8920	8060
	Date and time sampled	1957	1/15 1345	2/13	3/15	14/11	5/16 0845	6/14	7/15	8/12	9/10	10/7	11/13	12/10

o Iran (Fe), aluminum (AI), areenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as above except as shown.

b Determined by addition of analyzed constituents.

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† Field ph except when noted with \*

ANALYSES OF

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

	Analyzed by 8		USGS	uses	uses	usgs	uses	USGS	USGS	USGS	USGS	USGS	USGS	usgs	
	MPN/mi											Median 230	Max. 7,000	M1n. 6.2	
	Tur- bid- ity n ppm		15	12	35	19	10	25	20	-01		•	35	91	
	N C B		0	0	0	0	0	0	0	.at	0	0	0	0	
	11		99	70	53	15	53	Ltı	69	99	70	62	20	79	
	Sod -		30	27	24	22	28	28	30	28	33	30	23	26	
10.40	solved solids in ppm						66				131				
	Other constituents					0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 -	Zn 0.02 PO <sub>1</sub> 0.15			, c	P. 0.02				
	(Sico		u-vi	ना	-81	-ol	81	<del>- 01</del>	~		21		-0		
6	Boron (B)	<b>9</b>	0.0	0.0	0.12	000	000	0.10	0-17	0.0	0	0.18	000	0.14	
parts per million	Flug- ride (F)	14. 16					0.01				0.01				
6		TA (S					1.1				0.01		-	-	
parts p	Chlo- ride (Cl)	r RIO VISTA (STA.	9.0	9.6	6.4	5.9	0.18	5.5	9.8	0.28	0.31	8.7	6.0	0.20	
Ē	Sul - fate (SO <sub>4</sub> )	ER AT				•	9.6	•			9.6				
constituents	Bicor- bonate (HCO <sub>3</sub> )	SACRAMENTO RIVER	93	1.41	1.10	1.08	1.11	63	1.38	1.23	1.59	1.34	1.38	1.31	
Mineral cons	Corbon- ote (CO <sub>3</sub> )	ACRAME	00.00	00.00	00.00	00.00	00.00	0.00	00.00	0000	0000	0000	0.00	0.00	
Z.	Potas- sium (X)	<del>∪i -</del>	1.3	1.2	1.2	1.1	1.0	1.2			1.8	<b>v</b>			
	Sodium (No)		13	12	8.0	7.1	9.6	8.6	13	14 0.61	16	12 0.52	7.8	10	
	Magne- S sium (Mg)		0.58	8°4 0°69	6.2	5.8	5.6	0.39		10	8.5		10	10	
	Calcium (Co)		15	14 0.70	11 0.55	12	12 0.60	11 0.55			14 0.70				
	표 •		7.3	7.3	7.3	7.3	7.3	7.5	7.5	7.5	7.4	7.3	7.3	7.3	
	Specific conductonce (micrombos of 25°C)		190	185	139	138	151	135	185	187	216	182	143	162	
	1 6		96	96	96	89	85	90	96	85	95	85	91	89	
	Dissolved oxygen ppm %Sc		11.3	11.0	52 10.6	8.9	8.1	8.5	8.3	7.9	8.5	8.5	9.8	10.5	
			147	149	52 1	09	69	69	74	72	70	09	54	14	
	Discharge Temp in cfs in PF		Tidal												
	Date and time sampled	1957	1/16	2/15 0930	3/22 0930	4/17 0835	5/9 0845	6/1 <sup>4</sup> 0855	7/15	8/21	9/12	10/24	11/25	12/13	

o from (Fe), oluminum (A1), arsenic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromlum (Cr), reported here as  $\frac{QO}{QOO}$  except as shown. D Determined by addition of analyzed constituents.

Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate marthly samples made by Calif. Dept of Public Health, Division of Laborotories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-14

REGION	
VALLEY	
CENTRAL	

		Anolyzed by e		USGS	uses	USGS	USGS	USGS	USGS	U SGS	uses	USGS	USGS	nsgs	USGS
		MPN/mi											Nedlan 62	Mex. 7000	Min. 1.3
	T or	- bid - - fy n ppm			9	25	12	10	30	15	6	00	10	10	20
		Hardness os CaCOs Totol N C ppm ppm		0	<b></b>	0	2	0	m	0	m	0	0	0	0
				65	62	51	54	53	65	59	70	59	61	09	42
	Per	a od –		28	25	21	20	32	25	31	33	28	28	25	214
	Total	solved solids in ppm	<b>)</b>					107				011			
		Other constituents						Fe 0.06 A1 0.07 Cu 0.01 Zn 0.02 PO <sub>1</sub> 0.10 a				PO <sub>t</sub> O•15 Fe	ದೆ		
		Silico (SiD <sub>2</sub> )			XIII	<del>rsi -</del>		13	<del></del>		<del>-01</del>	ম	<del></del>	<del>-01</del>	~
	million	Boron (B)	$\sim$	0.07	0.06	0.09	0 00	0 0	0 0	0.18	0 0	70.0	0.10	00°0	0.02
nillion	per mil	Fluo- ride (F)	15					0.0				000			
ports per million	ΙÌ	rote (NO <sub>S</sub> )	(STK.					8 J C				0.00			
ports	equivolents	Z E Ž	- 0	1											
CENTRAL VALLES CECTON	edu	Chlo- ride (CI)	SACRAMENTO	7.4 0.21	6.9	5.3	5-3	0.25	7.7	8.0	0.31	2.5	8.9	8.0	0.16
H / 기상	٥	Sul - fote (SO <sub>4</sub> )	AT					11				0.18			
CENTR	constituents	Bicor- bonofe (HCO <sub>S</sub> )	RIVER	90 1.48	1.31	1.05	64 1.05	1.07	1.25	1.29	82 1.34	1.31	1,31	10,31	51 0.81
- 1	- 1		SACRAMENTO	0.00	00.00	00.00	0000	00.00	0.00	00.00	0000	0000	0000	00.00	0 000
	Minerol	Potas- Corbon- sum ote (K) (CO <sub>5</sub> )	SACR	0.03	1.2	0.03	0.9	0.03	1.2			1.5			
		Sodium P (Na)		12 0.52	9.8	6.5	6.1	12 0.52	0.44	12	15	11 0.14	11 0.48	9.2	6.2
		Mogne- sium (Mg)		0.55	6-7	5.7	5.8	5.6 0.46	7.9			6.6		•	
		Catcium Mc		15	14 6	0.55	0.60	0.60	13 2			13 65		,	
-	Ш		-	7.5 15	7.4	7.4	7.3	7.3	7.5	7.7	7.1	7.6	7.5	7.5	7-3
_	U	Q.													
	Specifi	conductance (micramhos at 25°C)		179	161	127	128	161	157	179	196	168	175	157	106
				102	105	100	96	91	95	98	75	93	89	な	92
		Dissolved oxygen ppm %So		12.7	52 11.6	11.0	9.6	00	8.7	8 5	8.	8.6	9.2	10.7	10.6
		Te and a second		£4	52	52	09	62	89	73	72	49	58	20	16-11
		Dischorge T in cfs	Mean Daily	10,600	10,100	38,400	15,800	18,900	11,700	8890	9430	12,700	17,900	18,700	38,000
		ond time sompled	1952	1/11	2/15 1 <sup>4</sup> 20	3/22	4/12 1545	5/10 1240	6/19	7/12	8/9	9/24 0715	10/21	11/25	12/20

o Iran (Fe), aluminum (A1), areenic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Concentrat (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pit except when noted with a

ANALYSES OF SURFACE WATER CENTRAL VALLEY HEGION TABLE B-11

Mines of a mode by Unity of Worst Dranch (UDGS), Footing Chemical Consultant Ports (PCC), Restrained MADE, to Angeles Dept of Water Resources (CAMP), an Indicated MADE, to Angeles Dept of Water Resources (CAMP), an Indicated MADE, to Angeles Dept of Water Resources (CAMP), an Indicated MADE, to Angeles Dept of Water Resources (CAMP), and Angeles Dept of Water Resources (C

	pez/	T	n	٠,	2	-9	2	.0	12	٠,	:2	:0	to	:0		.2	-70	.2	.0
	Anolyzed		2002	8228	USG	USGS	U3G2	11363	0503	U2G2	113.63	usas	SD SM	10000	USGS	Uscis	S. D. C.	UJGS	USGS
	Coliform MPN/ml																		
	1 - Ped -																		
	Hardness ae CoCO <sub>3</sub> Tatal N.C.		0	0	0	0	0	0	0	0	-	-1	ס	0	0	2	0	0	0
			62	79	63	68	99	19	59	177	25	2	35	3	52	53	77	7/1	671
	Cent Cent Sod -		26	58	c 27	26	56	2%	22	20	일 골	18 14	- 23	25	23	25	23	- 33	27
	solved solids in ppm		113°	126	121,°	120	120	110	105	<b>0</b> 88	717 R17	30g	786	89	102	1100	1000	986	93
	Other canstituents		Fe 0.00	Fe 0.04	Fe 0.04	Fe 0.02	Fe 0.02	Fe 0.02	Fe 0.01				Fe 0.12	Fe 0,11	Fe 0.08	Fe 0.03	Fe 0.03	Fe 0.04	Fe 0.06
	SIIico (\$102)		52	2h	2	277	23	ଧ	27	17	=	13	17	19	2	53	23	[2]	21
o lilion	Boron (B)		0.12	0,10	0.15	0.08	0.0	0.0	0.05	90.0	0.03	0.05	0.11	0.12	0.12	0.08	0.09	0.10	0,10
million	Fluo- ride (F)	. 15)	0.0	0.0	0.3	0.0	0 0	0.0	0.0	0.0	0.0	0.0	0.3	0.3	0.01	0.0	0.0	0.0	0.1
ports per	Ni- trate (NO <sub>3</sub> )	SACRAMENTO (Sta	0.0	1.1	1.2	1.0	0.8	0.5	0.5	0.0	0.7	0.6	0.5	0.8	0.0	0.0	0.0	0.00	0.0
g vinoe	Chla- ride (Ci)	SACRAME	6.5	8.0	8.0	8.5	7.5	6.0	5.5	3.0 0.08	0.03	1.5	2.5	3.5	5.0	6.6	5.2	3.0	6.0
.c	Sul - fote (SO <sub>4</sub> )	TER AT	5.8	9.6	9.6	8.6	8.6	7.7	5.8	3.8	0.0	2.9	3.8	5.8	7.7	12	6.7	3.8	5.8
constituents	Bicar- bonate (HCO <sub>3</sub> )	SACRAMENTO RIV	92	80	1.26	1.38	A3 1.36	77	74	06.00	29	35	1720	0.90	64	70	66	61	64 1.05
	Corban- ate (CO <sub>3</sub> )	SACRAM	000	000	0.00	0000	0000	0000	000	0000	000	000	000	00.00	000	0 0	000	0.00	0000
Mineral	Potas- sium (K)		1.3	1.5	1.1	1.1	1. L	1000	0.03	0.03	0.0	0.03	0.03	0.03	0.03	0.03	0.0	0.03	0.0
	Sodium (No)		0.00	12	17.0	0.48	11	17.0	8.1	5.2	2.l <sub>1</sub>	3.3	0.22	5.9	7.3	9.3	6.6	6.1	8.5
	Magne- sium (Mg)		6.6	7.1	6.8	7.4	6.9	6.3	6.1	0.33	2.1,	2.9	3.3	0.38	5.4	6.14	200	2.8	0.38
	Calcium (Ca)		0.70	0.70	0.70	15	15	0.70	1.3	다. ()	0.30	7.2	9.6	0.50	0.60	13	12	13	12
	* <sub>E</sub> 4		7.5	7.1	7.h	7.3	7.3	7°L	7.3	7.1	7.0	7.0	7.2	6.9	7.1	7.3	7.2	7.2	7.6
	conductonce (micromhos		161	178	175	181	177	159	151	112	62.8	75.8	95.0	112	137	9116	130	H	128
	Dissolved oxygen (r																		
	in of																		
	Discharge Temp in cfs in oF	AVERAGE	DAILY 10,590	12,850	13,280	11,960	0η66	10,460	14,550	32,500	65,250	55,200	,6,200	52,240	9,940	<b>20,</b> 120	15,850	2,100	23,200
	Dote and time sampled	1957	1/3-10	1/11-14;	1/21-26	1/27-31 1	2/1-13	2/17-20 1	2/22-23 1	2/27-25	2/27-28 6	3/1 6	3/6,	3/11-20	3/21-31 2	1/2-9 a	1/12-15	Z 97/1	b/17-2h 23

a Iron (Fe), aluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shown. b Determined by addition of analyzed constituents

Gravimetric determination.

of Annual March Conculoted from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Loborataries.

A Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Los Angeles Dewer (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when noted with #

ANALYSES OF SURFACE WATER CENTHAL VALLEY REGION TABLE B-14

	70																		
	Analyzed			USGS	USGS	SDSN	SDSU	USGS	USGS	nsgs	USGS	USGS	USGS	USGS	USGS	uses	USGS	USGS	USGS
	Caliform MPN/ml																		
	pid- hpgdu			<del></del>															
	1655 1CO3	P C E		0	5	0	0	0	Э	0	0	0	0	0	0	0	၁	0	0
		Total		677	23	58	39	20	59	8	58	19	62	26	89	68	72	7/7	7/7
3	sod -			27	22	28	172	28	8	31	28	32	53	33	35	32	32	34	32
Tatal	salved salids	in ppm (c)		716	108	11	85	100	נזנ	777	111	128	11	112	130	129	134	243	156
	Other canstituents			Fe <u>0.03</u>	Fe 0.03	Fe 0.07 Al 0.08 Pb 0.01 <sub>a</sub>	Fe 0.07	Fe 0.02	Fe 0.01	Fe 0.02	Fe 0.03	Fe 0.03	Fe <u>u.03</u>	Fe U.01	Fe 0.01	Fe 0.01	Fe 0.02	Fe 0.00	Fe 0.02 A1 0.06 Zn 0.203
	Silico	(2016)		72	23	21/1	[23	[2]	23	53	13	77	23	디	277	24	23	킹	224
lign	Boron	(0)	(g)	0.08	0.09	0.07	8	0.05	0.02	0.01	71.0	0.02	0.01	0.08	0.15	0.00	0.24	0,39	0.13
million per million	Fluo-		(Cont d)	0 0	0.0	00	000	0.0	0.0	0.0	0.1	0.0	0.2	0.0	0.1	0.1	0.0	0.1	0.0
9	Ni –		(Sta. 19)	0.0	0.00	0.00	0.00	0.02	0.9	0.7	0.0	0.7	0.0	0.7	0.8	0.7	0.0	1.4 0.02	00.00
parts p	Chlo-		TO (St	5.5	6.5	7.0	3.0	5.5	7.8	8.5	7.8	9.5	8.3	9.0	13	11 0.31	120031	17	0.28
Ë	Sul -		SACRANENTO	8.6	9.6	13	5.8	6.3	9.4	8.6	11 0.23	0,21	9.0	5.8	9.6	11	0.23	5.8	13
constituents	Bicar -		RIVER AT	63	90°T	76	51	65	77	80	74	91	81	82	92	96	100	1.80	100, 1.70
1	Carban -	$\neg$		000	0000	00.0	0000	0000	0000	000	000	00.00	0.00	00.00	0.0	0000	000	00.0	000
Mineral		3	SACRAMENTO	0.9	0.04	1.6	1.5	1.6	1.8	1.8	1.6	1.8	1.6	1.7	0.05	1.8	1.8	1.8	1.8
	Sodium	Ô		0.37	77.0	25.0	6.0	9.3	12	13	12	15	12 0.52	13	15	15	16	18	17 0 14
	Magne- S	(6W)		0.38	0.56	0.56	3.6	5.5	6.4	0.50	6.3	7.8	0.58	8.3	0.50	99.0	0.69	8.9	9.6
	Calcium M	(00)		12	0.50	12	87.0	11 0.55	13	77 O. 20	13	02.00	13	8-8	19	02.0 770	15 0.75	15	77.0
	# Ha	٩		7.0	7.2	9.2	7.2	6.9	7.0	7.4	7.7	7.7	7.7	7-1	7.2	7. l	9.2	7-1	6.9
0.00	canductonce (micromhas			131	243	158	101	136	167	172	164	194	173	167	. T22	202	777	528	237
	Oissolved oxygen	ppm %Sat															-		
	Temp in oF																		
	Oischarge Temp		AVERAGE MEAN	DAILY 18,450	16,110	19,590	48,620	22,750	10,840	9120	9780	9750	9770	9510	9510	о¶86	0η86	10,550	12,330
	Oote and time sampled		1951	14/25-30	5/1-7	5/8-18	5/19-31	6/1-15	6/16-30	1/1-21	1/22	1/23-25	7/26-31	8/1-2	8/3-10	8/11-20	8/21-31	9/1-10	9/-11

a iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here os 000 except as ehawn. b Determined by addition of analyzed canstituents. c Gravimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Calif. Oppt of Public Health, Division of Laborataries.

e. Mineral analyses mode by USGS, Quality of Worer Bronch (USGS), Pocific Chemical Cansultant (PCC), Metrapalitan Water District (MWO), Los Angelee Oept. of Water & Pawer. (LADWP), City of Los Angeles Oept of Pub Health (LAOPH),

Lang Beach Dept. at Pub. Health (LBOPH) or United Stotes Bureou of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated.

Long Beach Dast of Pub Health (LBDH) or United States Bursou of Rectamplian Worse District (AWDH), Los Angeles Desired (LBDH), City of Los Angeles Desiret Manuel Manager (LBDH), City of Los Angeles Desiret Manager (LBDH), City of LBDH), City of LBDH, Ci

CENTRAL VALLEY REGION

										Mineral		constituents	Ē	ports p	L oo L	r million	1.								
Duo Puo Somi	Dote ond time sompled	Dischorge Temp	Temp in oF	Dissolved axygen ppm %Sat	Specific conductance (micromhas at 25°C)	*ਜ਼ ਖ਼	Colcium (Co)	Mogne- sium (Mg)	Sodium (No)	Potas- Sium (K)	Carbon- Gate (CO <sub>3</sub> )	Bicor- bonote (HCO <sub>3</sub> )	Sul - fore (SO <sub>4</sub> )	Chlo- ride (CI)	_	Fluo-Bor	Boron Silico	Other constituents	solved solids in ppm	Sod -	Hordness oe CoCO <sub>3</sub> Total N.C.	N.C.	Tur- bid - Coliform ity m ppm MPN/ml		Anolyzed bye
1957		AVERAGE								SACRAPIE	TH CINE	VER AT	SACRAME	SACRAMENTO (St	ਲ	15)(Cort.1d)									
9/20-30		DAILY 13,630			170	7.4	0.70	7.1	13	0.00	000	82	0.31	9.5	0.02	0.0 0.22	22 23	Fe 0.00	118	30	779	ກ	-,	-	Upen
10/1-6		16,130			130	7.5	02.0	6.8	13 0.57	2.1	0000	80	9.6	9.5	1.9	0.1	37 119	Fe 0.01	121	2	63	0	····		S. S
10/7-13		16,160			159	7.6	12 0.60	6.3	11 0.48	1.8	0000	78	0.11	7.5	1.2	0.00	37 24	Fe 0.00	109	59	26	0			وثديا
10/14-21		21,810			168	2.8	13	6.7	0.18	2.0	0000	1.26	12 0.25	9.0	1.2	0.00	26 24	Fe <u>0.0⊔</u>	113	28	9	0			Usles
10/22-31		18,020			154	<del>۲</del> ,	13	0.9	9.5	1.5	0000	73	7.7	7.0	000	0.0	28	Fe 0.0	102	56	57	0			U JG 3
11/1-10		16,380			152	7.2	13	6.9	9.2	1.5	00.0	72	12 0.25.	6.0	0.0	0.02	224	Fe 0.01	122	277	19	2			Uscas
ענ-ננ/ננ		15,880			159	7.1	02.70	5.6	010	0.04	0.00	74	11	0.20	0.0	0.0	252	Fe 0.01	124	27	28	0			Unds
11/15-18		27,300			112	6.8	0.50	0.38	6.1	1.8	0000	514	8.6	3.6	0.5	0.2 0.02	22 21	Fe 0.01	ž	23	777	D D		-	<b>.</b> .
11/19-26		19,550			143	7.2	13	5.5	9.0	1.5	0000	69	0.23	0.13	0.5	0.01	27 25	Te 0.03	116	25	Ñ	0			قدادرا
17/29-30		17,100			167	7.1	13	6.9	0.48	1.6	00.00	78	11 0.23	8.0	000	0.02	25	Fe 0.01	120	28	19	0			Usis
12/1-3,		15,280			157	7.5	7.2	0.84	97.0	1.7	0000	81	3.8	7.0	9.0	0.0	10. 10. 10. 10.	Fe 0.02	108	56	8	0			Shoul
12/11-17		15,400			159	7.1	05.0	0.00	917	1.9	0.00	80	6.7 0.11	6.0	0.0	0.2 0.08	138	Fe 0.02	105	27	28	0			USGS
12/18-23		35,380			112	7.0	2.4	8.8	6.2	1.5	00.00	0.90	5.8	0.17	0.7	0.3	8l	Fe 0.05	6	23	1,42	0			25.0
12/24,		32,790			135	7.0	6.h 0.32	8.5	7.5	1.6	00.0	1:11	21.0	5.0	0.0	0.02	122	Fe 0.05	100	27;	77	0			Untra
a tran (Fe)		oluminum (A1)	1	oreanic (Ac) coo	(")	lead (Bh)		(AV)		127		3		:	00	-						1	-		

o Iron (Fe), oluminum (Al), arsenic (As), capper (Cu), lead (Pb), mongonese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{00}{0000}$  except as shown.

b Determined by addition of analyzed constituents

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ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

		Analyzed by e		usgs	USGS	USGS	USGS	USGS	USGS	USGS	USGS	usgs	USGS	usgs	usgs	
				ns	US	ns	US	Sn .	SO .	ns	Sn	ne				
		MPN/mi											Median 620	Max. 7,000	Min. 2.3	
	Tur	- piq u		2	0 12	2 15	0 10	© 0	0 10	0 10	0 2	9 0	0 11	0 2	0 2	
		Hordness as CaCO <sub>3</sub> Tatal N C pom ppm		0		~~~										-
_				69	62	6η	55	51	47	57	61	99	η9	52	09	
-	ű.	Sod -		30	27	20	23	30	28	31	32	33	22	24	29	
	Totol	salved salids in ppm		118	113	85		97				128				
		Other canstituents		Fe 0.00	Fe 0.01	Fe 0.11	72.000	PO <sub>1, 0.0</sub> 0.20				PO <sub>11</sub> 0.30 . Fe 0.01 A1 0.02				
		Silica (SiO <sub>2</sub> )	ন	22 22	27	02		2 2	01	OI.		5 20	OI.	01		
5	illion	Baran (B)	126 - 97	0.12	0.01	00.00	0.01	0 • 02	0.10	0000	0.03	0.05	0000	000	70.0	
i i	per million	Fluo- ride (F)	H (ST	0.00	0.01	0.2		0.01			<u> </u>	0000				
north ner method	i   i	N1- trate (N0 <sub>9</sub> )	SLOUGH (ST	1.0	1.1	0.01		0.01				0.03				
ò	equivolents	Chlo- ride (CI)	SNODGRASS	9.6	8.2	3.5	0.18	8.8 0.25	5.5	7.7	9.0	12 0.34	4.5	4.9	8.2	
	ū	Sul - fate (SO <sub>4</sub> )	AT SN	7.3	9.6	9.6		2.5				8.6				
	constituents	Bicor- banate (HCO <sub>3</sub> )	RIVER A	1,41	1.34	57	1,11	1.08	1.05	1.25	1.29	1.2	1.48	1.15	1.34	
	Mineral cons	Carbon-	SACRAMENTO	00.00	0000	0000	00.00	00.00	00.00	0.00	0.00	0000	0000	0 00	0 00	
	M	Patas- Sium (K)	SACRA	1.1	1.3	0.02	1.0	0.03	1.1			2.1				, .
		Sadium (Na)		13	11	5.8	7.7	0.1	0.38	12 0.52	13	16	8.6	7.4	0.48	
		Magne- Sium (Mg)		7.3	6.7	5.8	5.5	4.4	4.7	•		8.0 0.66				•
		Calcium (Ca)		14	14	0.50	13	13	11	-		1 <sup>t</sup> 0.70				
		표 🖦		7.5	7.3	7.3	7.5.	7.3	7.3	7.5	7.5	7.1	7.5	7.3	7.3	
	or front	conductance (micrambas at 25°C)		182	172	115	143	151	134	162	173	210	156	135	162	
		1 = 1		100	100	66	90	104	82	90	78	94	89	91	91	
		Disso oxy ppm		11.9	11.2	10.9	8.9	10.1	7.8	7.9	7.1	6.8	0.6	10.3	10.7	
		Te and In OF		947	51	52	61	63	69	72	69	0,4	69	51	47	
		Discharge in cfs		Tidal Area										,		
		Date and time sompled	1957	1/11	2/15	3/22	4/12 1250	5/9	6/1 <sup>4</sup>	7/15 0910	8/9 1000	9/12	10/2 <sup>4</sup> 0900	11/25 1040	12/13 0840	

a Iron (Fe), aluminum (A1), orsanic (As), coppsr (Cu), taad (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 20 sxcspt as shown.

b Datarminad by addition of analyzad constituents.

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ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-14

gales Dept. of Woler & Power (LADWP), City of Los Angeles Dapt of Pub Medith (LADPM),

Part		Analyzed bye		บวยห	Nacu	Usan	USBR	USBR	บายห	hocd	USBIR	U.J.R.	
The control of the		Caliform MPN/ml											
The control of the		- piq - piq - hi h											
Market   Interpretation   Market   Color   Market   Constitutent   Market		S C S											
1		Sod -											
Discrete   The part   Color   Discrete   The part   The part   Color   Discrete   The part   Th	Tatal	solved solids in pom		108	96	09	7777	795	308	176	114	ii	
Observed   The control of the cont		Other canstituents											
Column   C		(SIIIC 0 (SiO <sub>2</sub> )											
Districting   Temp   Districting   Districting   Temp   Districting   Distric	on nillion		, el										
Discharge   Temp   Discolved   Conditional   Colour   C	per milli		1 4										
Disolved   Separation   Separ	parts	rogin 1	NDING (										
Discharge Temp   Discolved   Conductories   First   First   Conductories   First	e d n		AL GVA										
Secretic   Corporation   Cor	1		Ę									-	
Secretic   Corporation   Cor	nstituen	Bicor- banate (HCO <sub>3</sub> )	RIVER										
Specific   Parage	1	Carbon- ate (CO <sub>3</sub> )	NATENTO										
Discharge   Temp   Dissolved   Conductions   Part   Conductions   Part	N E	sium (K)	SACE										
Specific					·								
Discharge   Temp   Dissolved   Conductation   Post		agne- S sium (Mg)											
Outscharge Temp   Dissolved   Conditions   Family   Outscharge   Temp   Outscharge   Temp   Outscharge   Ou		Ca) M											
Discharge   Temp   Dissolved   Conductone		E .											
on city of a control of a contr	Specific	conductance (micramhas at 25°C)		129	162	124	159	976	929	212	164	163	
Discharge Temp in cfs in of the control of temp in cfs in of temp in cfs in cfs in of temp in cfs i		oxygen pm %Sat											
a E a a a a a a a a a a a a a a a a a a				53	63	02	17	89	89	7.7	95	95	
a E a a a a a a a a a a a a a a a a a a		Discharge in cfs	Avail-										
			1957	2-27 1455	5-1 1220	5-27	6-24	7-30	8-26 1330	9-25 1200	13-28	1240	

o Iron (Fe), oluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chramium (Cr), reparted here as  $\frac{QO}{0.00}$  except as shown. Differmined by addition of analyzed constituents

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d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Labaratories.

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CENTRAL VALLEY BEGION

		Anolyzed by e		uses	uses	nses	USGS	USGS	USGS	USGS	usgs	USGS	nsgs	USGS	nsøs	
		MPN/mi											Median USGS 62	Max. 1	Min. 1	
		Podd - Po		30	20	8	35	27	50	04	20	30	2	15	041	
				0	0	0	0	0	0	0	0	0	0	0	0	
		Hardness os CaCO <sub>3</sub> Totol N C ppm ppm		961	199	53	124	122	160	177	171	164	117	137	#8	
		sod -		28	28	24	26	36	25	29	29	27	27	28	33	
	Totol	Solved solids in ppm						194				260				
		Other constituents						Zn 0.03 A1 0.05 PO4 0.25				Fe 0.02 Al 0.12 POL, 0.45 &				
		Silico (SiO <sub>2</sub> )	140					25				33				
	million	Boron (B)	(STA	70.0	90*0	0.12	10.0	0.07	0.07	0.19	0.00	0.02	0000	0.00	0.16	
	per mi											0.1				
	<u>.</u>		LANDING					0.0 0.1				0.02				
CENTRAL VALLEY REGION	equivolents	Chlo- ride (Cl)	NEAR KNIGHTS	33	1.04	4.6	21 0.59	0.48 0	29	36	32 0.90	24 0.68 0	16	24	20	
LEY	Ē	Sul - fote (SO <sub>4</sub> )	NEAR					10 0.21		<u> </u>		6.7				7
L VAL			SLOUGH	269	266	1.11	158 2.59	162 0.	3.46	3.72	233	3.74 0.	168	3.08	106	$\dashv$
NTRA	constituents	Bicor- bonote (HCO <sub>3</sub> )	i i	la.	- 1	- 1	12		10							$\dashv$
CE	Minerof	Corbon- ate (CO <sub>3</sub> )	SACRAMENTO	0.00	0.00	00.0	0.0	0000	0 0	0.0	0.00	0.00	0.00	0.00	0.00	
	ž	Potos- Sium (K)	SACI	2.1	2.2	1.7	0.04	0.05	1.4			2°4 0°06				
		Sodium (No)		35	37	8.0	20 0.87	20.87	1.09	1.43	32	1,26	20	1.09	0.74	
		Mogne- S sum (Mg)		2,16	2.08	6.8	1.33	1.20	1.70		14	1.78		<u> </u>	10	$\dashv$
		£										1	_			$\dashv$
		Colcium (Co)		35	38	0.50	1.15	25	30			1.50			_	
		I W		8.1	8.1	7.3	7.7	7.7	8.1	7.9	4.9	7.8	7.7	7.5	4.	$\dashv$
		Specific conductonce (micromhos of 25°C)		508	521	134	315	315	410	457	944	425	315	372	229	
		1 5		96	104	89	83	<b>ಪ</b>	74	78	85	72	77	72	89	
		Dissolved oxygen ppm %S		1.3	8.0.8	4.6	7.8	7.7	6.1	6.5	7.0	6.7	7.4	7.8	10°4	
		Te no F		94	57 1	56	65	89	79	77	78	49	63	53	184	
		Dischorge Temp		No Record	45 P	© +	346	558	1478	539	602	9	No Record	No Record	No Record	
		Date and time sampled	1957	1/14 1015	2/18 0945	3/11 1 <sup>4</sup> 25	4/15	5/13	6/21	7/15	8/19	9/10	10/16	11/18	12/23	

a fron (Fe), aluminum (A1), aresnic (As), copper (Cul, fead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

b Datarminad by addition of analyzed constituents. c Gravimetric determination.

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BUHLACE WATER

t ong hanch test of public state Department of Water Recourses (DWR), as indicated by the Angeles Dept of Woter & Power (LADWF), City of Los Angeles Dept of Pub Health (LADPH), Field the mated with a

CENTRAL VALLEY NEGION

	Anolyzed		U.Bii.	USBIL	100	U. Sar	אומייי	1.00%	Hdc.)	177	1.031	Jo. 13	100 100 100 100 100 100 100 100 100 100	пред		
	Coliform MPN/mi															
	Tur- bid- tty nppr															
	Hordness os CaCO <sub>3</sub> Totol N.C.				_											
	Sod -		09	19	65	30	67	50	87	51	51	77	09	19		
	solids in ppm		1432	093	1134	1779	620	9009	897	867	095	877	1278	1130		
	Other constituents															
ports per million	Fluo- ride (B) (SiO <sub>2</sub> )	ta. 92a)														
151		RANCII(Sta.	1.9	2.5	3.1	2.5	1.9	2.6	2.5	2.5	0.0	1,0	5.0	4.3		
ports p	Chlo- ride (CI)	LUIS	398	217	280	169	173	136	119	134	148	125	7,05	3446		
Ē	Sut - fore (SO <sub>4</sub> )	AT SAN	398	230	326	137	100	88	78	288	476	56	261	24,3		
constituents	Bicor- bonote (HCO <sub>3</sub> )	SLOUCH	194	154	184	148	142	133	132	134	146	170	215	177		
1	Corbon- ote (CO <sub>3</sub> )	SALL	0.0	0.0	0,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6		
Mineral	sium (X)		4.7	1.6	3.5	2.0	3.9	2.7	3.5	2.3	3.1	3.1	5.1	2.3	-	
	Sodium (No)		301	198	230	89	103	98	8	92	88	36	274	248		
	Mogne- sium (Mg)		52	31	07	07	56	21	2	21	2	53	20	38		
	Colcium (Co)		83	58	72	23	94	38	47	017	74	747	76	74		
	* ਜੂ 4		8.3	8.1	8,2	7.5	7.4	7.4	7.1	7.8	7.6	7.3	7.4	8.6		
3	Specific conductonce (micromhos of 25°C)		2196	1392	1726	1001	7101	767	766	894	908	843	2000	1808		
	Dissolved oxygen ppm %Sot															
	Temp In oF		67	53	09	9	69	99	77	83	22	63	9	75		
	Dischorge Temp in cfs in oF	Average Mean Daily	82	133	106	137	83	89	100	123	73	29	8	59		
	Dote ond time sompled	1957	1 <b>-1</b> 6 1050	2-14 0917	3-14 1410	4-17	5-17 1035	0630	7-19 1035	1500	9-13 1235	10-17	11-15	12-17		

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		Analyzed by 6		USGS	USGS	usas	USGS	USGS	USGS	uses	USGS	nsgs	USGS	uses	USGS	
	7	Coliform a An												Max. 7,000	Min. 2.3	
-		- Colet		25	14	20	30	20	30	20	20	72	35 Median 960	20 Mr	15 M	
-	Tur	P pid -		36 2	93 1	25 2	34 3	12 2	7	288 2	240 2	202 2	<u>e</u>	7	23 1	
		Hordness os CoCD <sub>3</sub> Total N C ppm ppm		102	162 9		92	65	52	345 28	306 21	272 20	70,	49	88	
-		Pos Pos Pos Pos Pos Pos Pos Pos Pos Pos		54 1	63 1	34	54	94	35	76			ή1	39	45	
	otol	solved solved in ppm		275 <sup>b</sup> 5	9 <sub>Q</sub> †m5	152 <sup>b</sup> 3	2	1516 4	<u> </u>	7		2887	<u> </u>		_ ro	
-	اخ			70	15	FI	5					Fe 0.04 A1 0.08 1288 73	·			
		Other constituents					-	-			•	A1 0				
		her con		0.13	0.09	0.11	700	Zn 0.02 Po <sub>t</sub> 0.10			000	है।				
				<u>G</u>	Ge.	Ez.	p				ć					
		Silico (SiD <sub>2</sub> )		2 13	21	00 50	77	2 17	Z	21	ੜ <b>।</b>	13	21	81	81	
uoi	million	Baron (B)	<del>- 2</del>	1 0.19	2 0.08	2 0.00	0.07	1 0:05	0.07	0-30	0.21	1 0.17	0.10	00.00	0000	
E Ja	per	Fluo- ride (F)	- 4	0.01	0.02	0.01		0.01				0.01				
parts per million	equivalents	Ni- trate (NO <sub>S</sub> )	ANTI DCH (STA	2.3	2.4	2.3		0.00				6.3				00
	equiv	Chlo- ride (CI)	AT ANTI	2.62	236	0.79	2.45	1.10	15	880 24.82	21.43	670	28	26 0.73	83 2.34	
	Ē	Sul - 10te (SO <sub>4</sub> )	RIVER	27 0.56	54	23	<b>!</b>	14				2.02	· ·		•	
	constituents	Bicor- bonate (HCO <sub>3</sub> )	OU IN	1.33	1.38	1.05	71	1.07	62	1.13	1.33	1.39	1.34	1.26	1.29	3
'	- 1	Carbon- ote (CO <sub>3</sub> )	SAN JOA	0.00	00.00	00.00	0000	00.00	00.00	0000	0000	0000	0000	0000	00.00	
	Mineral	Patas- C sum (K)		3.1	5.8	1.5	2.8	1.6	10.0			17				1
		Sodium (Na)		2.48	133	0.83	2.26	1.13	0.57	506	422 18.36	364	22 0.96	20	2.09	
		Magne- sum (Mg)		1.04	1.94	8.4	0.99	7.3	200	- 0		3.99				
		Calcium (Ca)	-	1.00	26	0.85	0.85	14	12			1.45				
		<u> </u>		7.3	7.3	7.3	7.3	7.5	7.5	7.9	7.5	7.9	7.3	7.3	7-3	1
	Specific	(micromhos at 25°C)		96η	1010	239	457	261	169	3010	2670 7.5	5440	248	241 7.3	432	
		1 5 1		92	92	95	87	85	92	95	86	101	77	78	83	
		Dissolved oxygen ppm %S		10.7	↑°0.	10.2	8.7	8.0	<b>1</b> 0 ∞	8.0	7.6	9.1	7.5	8.9	9.6	1
		Ten or oF		148 1	50 10.4	54 1	09	65	68	77	72	70	63	95	64	
		Dischorge in cfs		Tidal Area						-						
		Dote ond time sompled	1957	1/16	2/15 0830	3/22 0825	4/17	5/9	6/1 <sup>4</sup> 1115	7/15	8/21 0920	9/12	10/2 <sup>4</sup> 1335	11/25 1445	12/13	(14) (14) (14) (14) (14) (14) (14) (14)

Iron (Fa), aluminum (At), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Gr), reported here as 200 except as shown.

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TABLE DE DE WATER

TABLE B-11

Angeles Dept of Pub Health (LADPH),

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

	Anolyzad		Unia	Li cio	Uncu	مغاديا	0,10,1	use.	escn.	USGS	ورازرا	دندلا	ched	رري	Udro	U CO	USGS	thut.	
	MPN/ml																		
	Pid bid- pid- mppm		0	0	0	0	0	-	0	0	0	0	0	0		0	0	0	
	Hordness os CaCO <sub>3</sub> Totol N.C.		17.	56		32	35	32	377	23	52	277		50	13 10	18	17	27	-
-			36	308	37	37	33	717	77	07	β2 (1)	4	\$13	777	1,7	177	917	143	-
-	Solved sod in ppm		1,2°C	о 179	2 89 89	72 °	292 292	85 c 1	80 c	55 c 1	62° 1	62° 1			07	62° 1	10 St	53	-
	Selection of the select		7						Φ						7				+
	Other constituents		Fe 0.05	Fe 0.06	7e 0.06	Fe 0.04	7e 0.00	Fe 0.00	Fe 0.00	Fe U.O	Fe 0.00	Zn <u>0.05</u> a	Fe 0.06	Fe <u>0.03</u>	Fe 0.03	Fe 0.08	Fe U.02	Fe 0.01	
	Sitica (SiO <sub>2</sub> )		31	귀	21	귀	13	킈	112	β.6	ρ.	31	110	킈	9.6	7.9	8.2	7 9.1	<sub>e</sub>
uo	Boron (B)		90.0	0.02	0.05	0.00	0.13	0.03	0.02	0.05	0.04	8	0.16	0.20	0.25	0.31	0.11	0.07	s show
r milli	Fluo-Bore	24a)	0.01	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.2	0.2	0000	000	000	0.2	0.0	0.0	xcept
parts per million	hlo- hrate ride (CI) (NO <sub>3</sub> )	A (Sta.	1.3	0.03		1.8 0.03	1.7	1.0	0.7	1.0	0.0	0.0	1.8 0.03	1.6	0.03	1.4	1.0	1.1	S S S
1	Chlo- ride (Cl)	AR BIOLA	3.5	5.0	5.5	5.5	5.5	0.0	7.0	5.2	5.8	5.0	1.1 0.12	0.13	0.11	2.8	5.5	5.2	d here
Ē	Sul - fate (SO <sub>4</sub> )	IVER NE	3.8	3.8	3.8	0.10	0.10	7.7	6.7	5.8	7.7	7.7	5.8	2.9	1.9	1.0	2.9	0.02	reporte.
constituents	Bicar- banate (HCO <sub>3</sub> )	AQUIN R	22	38	1,5	h77	53	50	53	31	34	3/1	34	37	0.34	377	27	29	niom (Cr.)
	8 0 0	SAN JU	0000	0000	0.00	00.00	0.00	0.00	0000	0000	0000	0000	00.0	00.00	00.00	0.00	000	0000	and chramium (Cr), reparted here as OO except as shawn.
Mineral	Potos- Sium (K)		0.03	1.2	1.5	1.3	0.03	1.3	1.6	0.03	1.3	1.6	1.8	1.7	1.6	1.7	1.7	0.03	(Zn), a
	Sodium (No)		0.21	7.8	8.8	9.3	100	12	12	7.3	0.38	0.36	8.4	7.9	6.2	6.4 0.28	7.3	6.7	
	Magne- S sium (Mg)		0.09	0.15	2-1	2.2	3.2	2.3	2.8	1.7	1.8	0.11	1.5	1.2	2000	0.10	1.3	0.10	nese (M
	Calcium (Ca)	-	5.0	7.4	0.6	9.2	0.111	9.0	9.0	6.4	7.0	7.4	6.4 0.32	0.30	0.22	5.2	0.23	5.0	b), mange
	# 4 .		6.7	6.9	6.9	7.1	6.7	6.7	9.9	6.7	6.7	6.7	6.9	6.9	6.7	6.7	7	7.0	end (P
	Specific conductonce (micromhas at 25°C)		54.8	89.8	101	106	104	112	777	76.6	88.1	84.5	84.2	30.2	52.6	73.0	71.1	72.1	oer (Cu), 1
																			E), capp
	Dissa oxy ppm																		enic (As
	Temp in of																		AI), ors
	Discharge Temp	Average	Daily 240	06	70	70	80	9	20	120	103	8	100	100	330	100	120	110	4) minum
	Date and time sompled	1957	1/1-1/1	1/15-31	2/1-11	2/15-28	3/1-16	3/17-31	1/1-8	11/9-22	4/23-31	5/1-13	5/14-31	6-8/9	21-01/9	6/13-30	7/1-10	7/11-20	o fron (Fe), aluminum (A1), orsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc
											D	179							

b Determined by addition of analyzed constituents c Gravimetric determination.

d Annual median and ronge, respectively Calculated fram analyses of duplicate monthly samples made by Calif Dept of Public Health, Division of Laborateries ander by USGS, Quality of Woter Bronch (USGS), Pocific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Los Angeles Dept. of Water & Pawer (LADMP), City of Los Angeles Dept of Pub Health (LADPH), Long Beach Dept of Pub Health (LADPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with #

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

							 										 	_
	Anolyzed bye		USGS	Uses	UCUS	0.335	සාදර	0568	UZGZ	nsce	USGS	usas	USGS	usgs	USGS	USGS		
	bid - Coliform ity MPN/ml																	
	D - bid - City																	
	Hardness oe CoCO <sub>3</sub> Total N.C. ppm ppm		0	0	0	0	0	0	0	0	0	0		0	0	0		
	1 1		118	18	18	21	19	21	33	28	25	25	277	29	118	28		
	sod –		173	113	1,2	143	 143	07	33	38	017	07		39	디	7		
Total	Solved solved salids in ppm (C)		55	55	29	8	 8	69	06	87	8	99	131	68	56	72		
	02) Other constituents		8.5 Fe 0.01	9.5 Fe U.00	Fe U.00	z <u>0,00</u> a	 Fe U.00	Fe 0.01	Fe U.09	Fe <u>0.01</u>	Fe U.02	Fe 0.02		Fe 0.03	Fe U.OL	Fe 0.02		
ا	(Si02)		0.02	0.05	0.03	0.06 10	 0.03	0.00	0.00	0.02	0,00	0.00		0.00	00.00	0.00 13		$\dashv$
million per million	ride (B)	cont'd)	000	0.0	0.1	0.0 0.01	 0 0 0	0.01	0.01	0.01	0.0	0.2 0.0I		000	<u></u>	0 8		$\dashv$
9		2lta) (con	0.0	0.07	0.02	0.01	0.01	0.5 0.01 0.01	100	000	0 8 0	1.1 0.02 0.02		0.01	1.3	2.6 0.04	 	-
parts p	- Ni - trate (NO <sub>3</sub> )	(Sta. 2											_					_
69	Chia- ride (CI)	BIULA (S	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5.4	3 0.11	0.11	10.13	2 0.14	5 0.42	9.6	6.5	6.0		6.0	3 0.12	6.0		
ts in	Sul - fate (SO <sub>4</sub> )	NEAR B	0.05	1.5	1.5	3.8	1.9	1.0	2.9	2.3	000	0 0		3.8	3.8	1°7		
constituents	Bicar- bonate (HCO <sub>3</sub> )	KIVER	29	30	30	311	33	35	177	179.0	0.69	0.69	0.74	0.72	28	0.79		
Mineral co	Carban- ate (CO <sub>3</sub> )	JOAQUIN	0.00	0000	0.0	0 0	000	000	0.00	0000	0000	000	0000	0000	0 0	0000		
M	Patas- sium (K)	SAN	0.03	0.03	1.5	0.01	1.3	1.3	1.5	1.5	1.6	1.5		1.6	1.6	1.8		
	Sodium (Na)		6.7	6.7	7.0	7.9	7.2	7.2	8.0	8.3	8.2	8.3	8.0	9.1	6.3	0.148		
	Magne- sium (Mg)		1.0	0.7	0.0	1.8	0.10	0.10	2.1	2.1	3.14	1.9	1.0	2.2	1.2	0.16		
	f Calcium (Ca)		5.7	6.1	6.5	5.2	 5.7	6.7	10	7.8	1.4	6.8	20	8.0	5.0	7.8		-
	ā		6.7	6.7	5.5	6.7	 7.0	6.9	7.2	7.3	6.8	6.8	6.8	6.8	7.1	6.9		
Specific	conductance (micromhos at 25°C)		73.2	74.1	75.6	9*62	76.9	81.9	119	97.0	92.3	92.3	198	103	9.19	107		
	Dissolved axygen ppm %Sat																	
	Temp in oF																	
	Oischarge Temp in cfs in 0F	Averace Mean Daily	110	100	100	80	06	80	80	70	70	02	89	02	180	8		
	d d	1957	7/21-31	8/1-10	8/11-31	9/1-15	9/16-30	10/1-22	10/23-25	10/26-31	11/1-20	11/21,23-	11/29	11/30-	12/18-20, 22	12/23-26, 28-31		

o Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chramium (Cr), reparted here as 00 except as shown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Labarotories.

e. Mineral analyses mode by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metrapolitan Woter District (MWD), Los Angeles Dept. of Woter & Power (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

Long Beach Dept of Pub Health (LBDPH) or United States Bureou of Reclamation (USBR) or State Department of Woter Resources (DWR), as indicated. f Field pH except when noted with #

Lang Beach Dept of Pub Health (LBDPH) or United States Bursou of Reclamation (USBR) or State Deportment of Woter Resources (UWR), os indicated Angeles Dept of Pub Health (LADPH).

CENTRAL VALLEY REGION

	9					
	Anolyzed bye		UJER	USBR	USBR	1,50 mg
	aliform APN/ml					
ı n	Hardness bid - Caliform of CaCO <sub>3</sub> ity MPN/ml					
	dness CaCO <sub>3</sub>	mdd d				
	l'	E G G				
0.	ad sod -	o	73	67	97	43
Tota	solved solids in ppm		528	160	432	290
	Other constituents					
	Silica (SiO <sub>2</sub> )					
on	5					
parts per million equivalents per million	Fluo- ride (F)					
arts pe	Ni- trate (NO-)	Sta.				
equive	Chlo- ride	BRIDO	117	34	100	88
ï	Sul - fate (SO.)	BRANDT BRIDGS (Sta.				
ituents	Bicor- bonafe (HCO.)	F .1				
Mineral constituents	Corbon Bi	OUIN RI				
Miner	Potas- Cor	SAN JOAQUEN				
	Sodium Pol		7/2	274	77	67
	Magne- Soc sium (N	;	~		-	4
	Mag 3) Sin					
	f Calci					
fie	(micromhos PH Calcium Nat 25°C)					
S.	(microi		172	244	662	567
	lved gen	2	1			
	Discharge Temp in cfs in of	73	09	70	7/2	775
	Discho in ci	Not				
	Date and time sampled	1957	3-1	5-27	8-28	11-27

a Iran (Fe), oluminum (Al), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chromium (Gr), reported here as 00 except as shown.

b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Labories.

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ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-11

	Analyzed bye		USBR	USBR	USBR	USBR	изви	USBR	USBR	USBR	USBR	USBR	USBR	USBR	
	bid - Coliform ity MPN/ml														
- La	- bid ify ify Mode											-			
	N CO3														
	Hardrage Ca														
Per	s ium		27	3	78	75	50	43	20	20	51	55	27	252	
- E	solids in ppm		959	788	007	218	482	208	268	524	959	504	826	80	
	Other constituents														
	Sitica (SiO <sub>2</sub> )														
nillion	(B)	a. 26b)													
equivalents per million	Flug- ride (F)	BRIDGE (Sta.													
orris pe	Ni- trate (NO <sub>3</sub> )														
equiv	Chlo- ride (CI)	LANDIN	158	131	91	50	119	77	143	121	160	130	244	217	
٩	Sul - fate (SO <sub>4</sub> )	AL CROWS LANDING												-	
constituents	Bicar- bonate (HCO <sub>3</sub> )	RIVER AL													
- 1	Carban B											-			
Mineral	Potas- Ca sium (K)	SAN JOAQUIN										_			
	ium Pot	ν.I	l	4	- J		اء		<b>-</b> ↓						
	ne-Sodium m (Na)		571	76	72	36	85	30	104	-21	112	97	986	8777	
	Magne- sium (Mg)														
	Calcium (Ca)			<del>.</del>		·									_
ific	conductance (micromhas at 25°C) f		02	928	655	371	738	7.	606	784	958	69		q	
			1170	6	19	3,	72	301	6	3/2	66	692	1382	1272	
	Dissolved oxygen ppm %Sat														
				55	99	ره	69	т.	76	76	72	2	0	9	
	Discharge Temp in cfs in oF	Not	ζ.	50		•	40	77	2	2	7	29	09	95	
	Date and time sampled	1957	1-17	2-13 1350	3-15	1135	5-16 1150	6-13 1210	7-18	8-15 0945	9-12 1205	10-16	11-14	1310	

a tron (Fe), aluminum (A1), areenc (A2), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{0.0}{0.00}$  except as ehawn. b Determined by addition of analyzed canstituents

c Gravimetric determination.

d Annual median and range, respectively Colculated from analyses of duplicate monthly samples made by Calif. Dept of Public Heolth, Division of Lobaratories.

e Mineral analyses made by USGS, Quality of Woter Branch (USGS), Pacific Chemical Consultant (PCC), Metropalitan Water District (MWD), Las Angelee Dept. of Water & Pawer (LAOWP), City of Las Angelee Dept of Pub Health (LAOPH),
Long Beach Dept of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated.

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tion Consulton (CCC), Metropoliton Woler District (MWO), to Angeles Dest of Woler & Power (LADWP), City of Lim Angeles Dest of Antiphy, the district (MWO), to Angeles Dest of Woler & Power (LADWP), City of Lim Angeles Dest of Pub Health (LADWP),

CENTRAL VALLEY REGION

		Analyzed by e			uses	nsgs	usgs	USGS	usgs	ns cs	nses	uses	USGS	USGS	USGS	USGS
	,	Caliform a										_		Median 62	Max. 7,000	Min. 2.3
	1	pid c			<i>=</i>	15	10	22	30	20.	50	25	20	2	40	
		CO3	2 E		149 2	110 33	165 52	177 87	125 43	73 18	100 31	99 22	125 27	131 24	134 42	33
-			E dd			<del></del>		1,								
-		ed sod -			78	57	50	17	299 48	34	643	64	321 52	51	55	23
-	-10 10 10	solved solids	۵													
		Other constituents						ק. קי	Cr 0.01 Zn 0.01			PO. 0.35	Fe 0.02 Cu 0.01			
		Silico (SiO <sub>2</sub> )	'						20			_	13			
١	illion	Boron (B)		25	0.02	0.32	0° 40	0.20	0.13	0.01	0.25	0.12	0,18	0.23	0.15	0.14
e lie	per million	Fluo-		STA					0.02				0.03			
ports per million		trate a con	200	PALOS (STA					1.7				1.1			
	equivolents	Chlo-	$\dashv$	WEAR DOS	24 0.68	2,40	3.10	3.21	2.00	1.04	1.33	1.69	2.59	2.40	2.54	2.12
ארחקונו	ē	Sul - fate	200						1.21				41 0.85			
TO THE PARTY OF TH	constituents	Bicar bonate	1	IN NIU	57	1.54	138	1.80	100	1.10	1.38	1.54	120	131	112	1.56
		Carban – E		SAN JOAQUIN RIVER	0.00	0000	0.00	0000	0000	0 00 0	0.00	0000	0.00	0 00 0	0000	0 0000
	Mineral	Potos-	+	জ	1.6	2.5	3.6	3.1	2.6	2.1		<u> </u>	3.5			
		Sodium (No)			22 0.96	2.96	3.42	3.26	2.35	38	1.18	1.91	2.78	63	2.87	2.48
		Magne-	(å		4.0 0.33	7.9	1,40	1.48	1.00	6.2			1.20			
		Calcium (Ca)			13	31	38	2.05	30	19		-	1.30			
$\vdash$					7.1	7.3	8.3	7.9	<u>ر</u> ٠	7.4	7.7	7.9	6.1	8.1	7.7	7-7
-	fic	mhos (5°C)	+						2 7							
	Spec	(micrambos at 25°C)			1 208	5 596	730	3 715	86 502	90 301	1/371	85 413	5 586	2 579	009	517
			%201		101	96	134	103			16 9		105	122	101	104
			€ dd		11.9	10.0	13.4	9.7	7.9	7.9	7.6	7.9	9.0	11.11	10.6	11.3
		Te a a a a a a a a a a a a a a a a a a a			147	56	9	69	99	. 72	77	49	75	69	96	53
		Discharge Temp		Mean Daily	941	0	0	6	0	12	0	0	0	0	0	0
	é	Dote ond time sompled		1957	1/7	2/18 1145	3/18 1400	4/8	5/13 0959	6/10	7/10 0855	8/5 1035	9/24 1220	10/14	11/19	12/16 1345

o Iron (Fe), oluminum (A1), preenic (Ae), copper (Cu), teod (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as ehown.

b Datermined by addition of analyzed constituents. c Gravimetric determination.

d Annuol median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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CENTRAL VALLEY REGION

	Anolyzed by 8			USGS	usgs	nsds	nsgs	USGS	USGS	USGS	USGS	usas	nsgs	USGS	USGS	uses	nsgs	USGS	
				E	US	E C	Sin	UE	<u> </u>	5	US	5	25	ğ	ga .	ğ	în n	- A	
	bid - Coliform																		
I in	- piq Lippm			6		7		-		~					80	0	60		
	N N D D D D D D D D D D D D D D D D D D			6 249	5 88	8 137	7 161	9		6 132	55	9	33	1 91	1, 128	110	88 11,8	19	-
	sod - de Co ium Total ppm			911 09	59 245	59 288	60 317	226		57 276	56 225	55 198	157	51 211	54 274	542 242	53 288	50   151	
fal	salved so			1330 6	775	606	0101			827	655	260	181	551	157	999	962	385	
ρ.																			$\dashv$
	Other constituents			Fe 0.00	Fe 0.00	Fe 0.00	Fe 0.00		Fe 0.00	Fe 0.01		Fe 0.03		Fe 0.02	Fe 0.00	Fe 0,00	Fe 0.00	Fe 0.01	
	Silica (SiO <sub>2</sub> )			33	93	92	56		25	[3]	55	121		53	156	9]	95	[3]	
an	Bordn (B)		<del></del>	1 0.66	0.58	2 0.93	1:1	0.99	0.50	0.91	0.00	0.50		0.50	0,80	0.60	0.64	2 0.27	$\Box$
per millian s per million	Flug- ride (F)	, 25c)		5 0.01	0.02	0.3 8 0.02	5 0.02		0.0	000	000	0.03		0.0	0.0	0.0	0.0	0.0	
parts pe	Ni- trate (NO <sub>3</sub> )	GE (STA		3.1	3.1	8000	3.3		0.07	2.3	2.1	2.9		3.8	3.1	0.0	3.4	2.6	
equiv	Chide ride (CI)	FORD BRIDGE(STA		12.75	200	250	288		137 3.86	231	170	177		152 4.29	206	191	243	104 2.93	
ē	Sut - fate (SO <sub>4</sub> )	ONT FO		223	3.04	3.91	219	230	89 1.85	3.60	2.46	98		96 2.00	3.04	121	143 2.98	62 1.29	
constituents	Bicar- bonate (HCO <sub>3</sub> )	AT FREMONT		3.34	3.13	18h 3.02	3.11	2.29	130	175	3.18	168	2,13	2.39	178	161	171	121 <sub>4</sub> 2.05	
1 1	Carbon- ate (CO <sub>3</sub> )	RIVER		000	000	0.00	0.0	000	000	000	000	0000	000	0.00	000	0000	000	000	
Mineral	Potas- Sium (K)	JOAQUIN		0.10	0.10	3.6	0.10	3.6	3.4 0.09	0.10	3.8	3.6		3.4	0.10	3.h 0.09	3.8	2.6	
	Sadium (Na)	SAN		291	166	197	219	6.39	97	17.1	133	1114	3.04	103	87.9	131	154	3.04	
	Magne- Sium (Mg)			50 4.13	29 2.40	35	3.25	22 1.83	18	31 2.58	25 2.05	20	17	22 1.82	30	25 2.05	31	1.47	
	Calcium (Ca)			81,19	50	58 2.89	309	2.69	1,2 2,10	59	2.45	2.30	33	2.10	3.04	56 2.79	65 3.24	31	
	* 선					7.1	0.5	7.2	7.8		8.0	6.9	9.9		6.7	8.9	6.8	6.7	
o.	conductance (micromhas at 25°C)			2170 7.9	1280 7.0	11,90	1640	1150	831	1350 7.8	1070	916	627	908 6.7	1230	0111	1320	653	
	Dissalved (Coxygen (C			_															
	Temp in oF																		
	Discharge Temp in cfs in oF		AVERAOE MEAN DAILY	72	230	190	170	291	1270	260	300	360	569	1510	320	290	220	091	
	Oate and time sampled		1957	1/1 - 7	1/8 - 17	1/18 - 31	2/1 - 9	2/11	2/12 - 15	2/16 - 26	2/27 - 28	3/1 - 3	3/4	3/5 - 9	3/10 - 31	4/1 - 6	1,77 - 17	14/18 - 30	
_																			_

a Iron (Fe), aluminum (A1), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chramium (Cr), reported here as 300 except as ehown.

b Determined by addition of analyzed constituents

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f Field by except when noted with \*

Mode by Colf Dept of Public Health, Division of Leborotories.

Modes by Colf Dept of How Modes District (MWD), Los Angeles Dept of Water & Fower (I ADWF), City of Los Angeles Dept of

CENTRAL VALLEY REGION

	Anolyzed by e			USGS	USGS	USGS	USGS	USGS	uses	USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS	nses	
	bid - Coliform																		
	S C C E			129	51	7	33	63	77	83	79	79	8	93	73	8 25	81	66	
	Hordness oe CoCO <sub>3</sub> Total N.C. ppm ppm			263	174	98	142	197	155	506	505	194	212	220	500	218	216	247	
	sod -			775	52	148	8	23	52	52	275	57	574	53	737	775	55	26	
Totol	dis- solved solids in ppm c			739	1797	248	372	537	914	551	555	89	5814	588	547	909	617	705	
	Other constituents			Al 0.12 Cu 0.01	Fe 0.01	Fe 0.04	Fe 0.02	Fe 0.01	Fe 0.02	Fe 0.02	Fe 0.03	Fe 0.03	Fe 0.03	Fe 0.03	Fe 0.03	Fe 0.03	Fe 0.02	Fe 0.01	
	Sllico (SiO <sub>2</sub> )			777	56	22	55	23	214	28	위	56	27	25	25	56	53	2	
million per million	ride (B)	25c) (Cont.)		0.3 0.27	0.1 0.29	0.1 0.23	0.1 0.26	0.2	0.2 0.29	0.2	0.1	0.27	0.3 0.31	0.1 0.33	0.3 0.36	0.02 0.02	0.3 0.34	0.3 0.32	
6		STA, 25		0.02	2.2	2.1	2.7	1.6	3.0	0.0	0.0	0.0	1.7	1.5	1.7	1.7	0.02	000	
porte p	Chlo- ride (CI)	BRIDGE (		229	3.50	54	2.65	154	3.19	167	165	182	176	174	160	182	194	5.37	
Ē	Sul - fote (SO <sub>4</sub> )	FORD		2.48	75	36	60	83	77	1.87	79	91	91 1.89	1.98	814	2.00	101	2.33	
stituents	Bicar- bonote (HCO <sub>3</sub> )	FREEMONE		164 2.69	150	105	133	163	135	150	154 2.52	158	2.44	155	155	162	165	180	
Mineral constituents	Corbon- ofe (CO <sub>3</sub> )	VER AT		000	000	0.0	0.00	0.00	000	000	000	000	000	000	0000	0000	0.00	00.00	
M.	Potos- sium (K)	JOAQUIN R		200	5.0	3.3	3.7	5.6	0.11	5.6	5.0	5. L 0. 11	5.2 0.13	5.0	5.0	5.4	0.12	5.2 0.13	
	Sodium (No)	SAN JO		11.14 6.26	3.92	1.87	68 2.96	107	3.48	105	76°1	121 5.26	5.13	5.13	110	5.35	5.52	1117 6.39	
	Mogne- sium (Mg)			29 2.42	118	9.2	77.	20	16	22 1.82	214 2.00	26 2.13	2.29	29	27 2.20	2.36	23	27 2.25	
	Calcium (Ca)			57 2.81	140 2.00	24 1.20	34	2.30	36	16 2.30	2.10	35	39	10 200	36	2.00	148	514 2.69	
	* Hd %			7.1	6 7.4	7.0	7.3	7.6	7.3	7.4	7.2		7.0	6.8	7.2	7.3	7.2	7.4	
	conductance (micromhos of 25°C)			1220	786	1,22	620	919	7214	933	963	1030	1000	1010	936	1050	1050	1210	
	Dissolved oxygen ppm %Sat																		
	Te or																		
	Discharge Temp in cfs in PF		AVERAGE MEAN DAILY	210	320	760	001	250	270	500	180	160	150	150	130	170	170	130	
	Date ond time sampled		1957	5/1 - 1/5	5/16 - 20	5/21 - 26	5/27 - 31	6/1 - 9	6/10 - 19	6/20 - 30	7/1 - 9	7/10 - 20	7/21 - 31	9/1 - 6	8/7 - 22	8/23 - 31	9 - 1/6	9/7 - 15	

o Iron (Fe), oluminum (AI), orsenic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as ehown.

b Determined by addition of analyzed constituents

c Grovimstric determination.

d Annual median and rangs, respectively Colculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angelss Dept of Pub Health (LADPH), Los State Division of Water Resources (DWR), as indicated.

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE 14-B

	Anolyzed by e			USGS	USGS	USGS	nsgs	nsgs	USGS	SDSA	USGS	USGS	usas	USGS	USGS			
	a lty MPN/mi																	
Tur-	- bid - lity noppu								70	Ħ		<u> </u>	C!		0			_
	P N			0 57	0 92	0 256	5 71	5 174	5 245	5 341	0 253	0 333	0 212	90 80	1, 190			$\dashv$
				56 210	55 240	0170	514 205	58 345	58 425	59 535	091 09	60 530	014 19	58 260	61 374			
Pe	ed sad -			603	5 1999	10 57	इक्त 2							5 557	0211			$\dashv$
Total	solids in ppm	_	_	<i>⊗</i>	9	1210	71/	1030	1300	1690	11,60	1690	1330	7	=		 	$\dashv$
	Other constituents			0.21 8n 0.01 0.02 0.03		0.01	0000	0000	0000	00.00	0000	00.00	0000	00.00	0.01			
	Silica (SiO <sub>2</sub> )			29 A1 Fe Cu	56	27 Fe	22 Fe	25 Fe	24 Fe	26 Fe	26 Fe	23 Fe	25 Fe	24 Fe	26 Fe	<u></u>		$\dashv$
Lo	Baran Si (B) (S	Tr.		0.35	0.30	0.50	0.30	0.37	0.50	69.0	0,61	0,85	0.59	0.22	0.58			$\dashv$
millian per million	Flua- ride (F)	25c1(Cont.)		0.03	0.3	0.2	0.2	0.2	0.2	0.2	0.2	0.0	0.2	0.2	0.2			$\dashv$
6	Ni- trate (NO <sub>3</sub> )	STA. P5c	-	0.02	0.07	0.10	3.0	3.9	3.7	3.9	5.2	0.07	0.00	6.3	5.9			
parts p equivalents	Chia- ride tr (CI) (N	RAIDGE ST		180	212	12.69	172 4.85	360	13.31	628 17.71	520	595	12.97	225	380		 	
.s	Sul - fate (SO <sub>4</sub> )	FORD II		65 1.35	86	3.87	71	138	169	250	250	315	219	132	227			
constituents	Bicar- banate (HCO <sub>3</sub> )	FEEZHON		3.05	180	3.08	164 2.69	3.41	3.61	236	252	3.93	242 3.97	3.61	224 3.67		 	
	Carban - E	VER AT		00.00	00.00	00	000	0000	00	000	000	000	0000	000	000			
Mineral	Potas- C. sium (K)	IN R		5.0	5.0	5.6	4.6 0.12	6.0	6.0	6.5	6.5	7.0	6.5	5.6	6.4			$\dashv$
	Sodium P (Na)	SAN JO U		125	136	256	112	9.66	272 11.83	362	324	379	304 13.22	7.4	272			
	Magne- S sium (Mg)	ω		23	29 2.35	51.16	2700	3.31	52	5.36	57 4.71	69	50	33 2.70	3.84			
	Calcium (Ca)			2.30	2.45	81	2,10	72 3.59	85	5.34	67.7	76.1	82 4.09	50	73	_		
	* E 4			7.4	7.6	7.5	7.3	7.3	7.7	7.7	7.5	7.8	7.6	9.2	7.1			
0000	canductance (micramhas at 25°C)			1030	0777	2090	915	1740	2150	2700	24,30	2690	2230	1260	1990			
	Dissalved cr axygsn (n																	
	Temp in OF																	
	Discharge Temp in cfs in of		AVERAGE MEAN DAILY	Uho	120	20	011	202	20	017	50	50	70	130	100			
	Date on time sampled		1957 A	9/16 - 30	10/1 - 17	10/12 - 17	10/18 - 19	10/20 - 31	11/1 - 8	12/9 - 21	11/22 - 30	12/1 - 5	12/6 - 18	12/19 - 21	12/22 - 31			

a Iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here os  $\frac{90}{0.00}$  except as shawn. C Gravimetric determination.

f Field pH except when nated with #

d Annual median and range, respectively. Calculated fram analyses af duplicate manthly samples made by Calif. Dept of Public Health, Division af Laborateries.

Mineral analyses mads by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitan Water District (MWO), Las Angeles Dept. of Water & Pawer. (LAOWP), City of Los Angeles Dept of Pub Health (LBOPH), or State Division of Water Resources (OWR), as indicated.

MATER SURIAL WATER

TABLE B-#
ANALYSES OF SURFACE WATER

by Calif Dapt of Public Hacith, Division of Laboratories Metrapolitan Water District (MWD), Las Anaxies Dept of Woter & Hawer

	pazi e		S	S	v	v	S	S	v	S	v	S	S	v,	
	Analyzed by e		USGS	USGS	USGS	USGS	USGS	nses	uses	usas	USGS	USGS	0 <b>20</b> 8	USGS	
	Caliform d MPN/ml											Median 23	Max. 7,000	Min. 1.3	
1 5	- pod u		7	7	N		-		-	0.0	7	2	~	9.0	
	Per- cent sod - oc CaCO <sub>3</sub> um Total N C ppm ppm		0	0	0	0	0	0	2	6	0	0	0	0	
			œ	12	15	12	10	10	17	23	6	15	13	n	
9			04	742	35	38	#	Str	33	30	¥	36	42	∄	
Total	solved solved in ppm						32				32				
	Other constituents					200					PO <sub>11</sub> 0.05 Cu 0.01				
	(SiO <sub>2</sub> )						<u>تا</u>		- 1		9.8			01	
oillian	Baron (B)	#	00.00	0.07	90.0	0000	0	00.00	0.17	₹ 0	0.02	300	0 0	0 0	
millian per millian	Fluo- ride (F)	-					0.01				0.0				
1511	rote (NO <sub>3</sub> )	VT (STA					0.01				0.00				
parts p	Chlo- ride (CI)	AT FRIANT	2.2	3.5	4.4 0.12	3.2	3.9	2.4	2.8	4.2 0.12	0.07	3.0	4.0 0.11	4.0 0.11	
٤	Sul - fate (SO <sub>4</sub> )	RIVER				-	0.00			<u>:</u>	0.00				
constituents	Bicor- banate (HCO <sub>3</sub> )	JOAQUIN	13	0.28	0.31	19	16	16	15	17	20	22 0.36	20	18	$\dashv$
	Carbon B		0 00 0	0000	0 0000	0.00	0000	0.00	0000	0.00	0.00	0.00	000	0.00	
Mineral	5 EC	SAN	0.01	0.02	0.02	0.02	0.02	0.02	10		0.03	10		10	
	Sadium sii (No)					$\overline{}$	4.0 0.17	0.17	4.0	4.3 0.19	4.3	3.8	4.4 0.19	3.8	
	<del></del>		0.03 0.12	0.04 0.19	1.2 4.6 0.10 0.17	0.05 0.16	0.02	0.01	# o	70	0.00	<u>~</u>	4 0	<u> </u>	
	Mogne- stum (Mg)														
	Calcium (Ca)		2.8	14.0 0.20	4.6 0.20	3.9	3.6	3.6			0.19				
	₹ <b>₩</b>		6.9	6.9	6.7	7.1	7.3	6.9	7.0	14.7 7.3	6.9	6.9	7.0	6.9	
Specific	conductonce (micromhas at 25°C)		33.2	45.9	47.8	42.2	143	η·6η	43.3		1.7.	541	t-111	42°3	
			12.3 106	11.9	96	105	112	103	114	109	92	98	103	66	
L	Disso		12.3	11.9	11.5	11.6	11.9	11.2	11.7	11.11	10.7	11.2	11.5	11.4	
	Eo G		82	53	94	52	55	53	58	59	89	647	51	64	
	Disconarge Temp in cfs in of		233	26	58	183	133	157	169	154	113	98	72	H-55	
	Date and time sampled	1957	17/1	2/18 1600	3/19	4/8 1605	5/13 1425	6/12	7/9	8/5	9/25	10/15 0850	11/19	12/17	

a Iron (Fe), aluminum (Al), arsenic (As), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{\Delta GQ}$  except as shawn.

b Defermined by addition of anolyzed constituents.

c Gravimetric determination.

d Annucl median and range, respectively. Calculated from analyses of duplicate marthly samples made by Calif. Dept. of Public Health, Division of Labartes.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER CENTRAD VALLEY REGION TABLE B-14

		Analyzed by e		USGS	USGS	nses	USGS	nsgs	nsgs	USGS	USGS	USGS	USGS	USGS	USGS	
		Coliform d MPN/ml											Median 2,400	Max. 7,000	Min. 62	
	10.1	Tur- bid- tty mpgm		7	6	20	15	#	20	25	2	2	œ	2	10	
		N CO3		37	95	52	19	13	11	0	0	12	ħΓ	26	19	
		Hardness os CoCO <sub>S</sub> Totol N C ppm		146	165	150	135	129	77	122	138	162	96	93	98	
	0	sod -		50	54	50	911	Lt1	71	51	53	53	51	52	52	
	Totof	solved solved in ppm						302				407				
		Other constituents					וסיסייט קור סיוא	Po <sub>tt</sub> 1.20 Zn 0.01 &			O	Fe 0.01 A1 0.09				
		(SiO2)	101	101	101	011	ml	1 21		7	12	<u>6</u> 20	- 67		-01	
REGION	on illion	Boron (B)	-	0.15	0.35	0.22	0.18	0.14	0.19	0.07	0.35	0.26	0.19	0.00	0.0	
	million per million	Fluo- ride (F)	E (ST					0.01				0.02				
	i	NI- trote (NO <sub>3</sub> )	BRIDGE (STA					2.0				1.0				
	parts p	Chio- ride (Ci)	GARWOOD	3.10	3.67	10 <sup>4</sup>	2.17	78	1.13	2.23	2.62	3.44	1.80	1.95	1.72	
۳ تا	Ē	Sul - fate (SD <sub>4</sub> )	AT					28 0.58				26		-		
CENTRAD VALLEY REGION	1	Bicor-S bonote (HCO <sub>3</sub> )	RIVER	120	133	119	141 2.31	142 2.33 0.	80	138	3.05	3.00	100	82 1.34	1.34	
	constituents		JOAGUIN	17			0.00	0.00		0.00	0.00	0.00	0000	0.00	0.00	
	Minerol	Carbon- ote (CO <sub>3</sub> )		0.00	0.00	0000	1	1	0.00	o	0	t	o	0	0	
	2	Potas- sium (K)	SAN	3.0	3.2	0.10	6.7	4.0	2.0			.6.4 0.16				
		Sodium (No)		3.04	3.92	3.13	2.48	2.39	1.26	2.52	3.13	3.78	1.96	2.00	1.87	
		Mogne- sium (Mg)		1.32	1.55	1.25	1,20	13	7.8			1.34		'	•	
		Colcium N		32 60	.75	35	200	31	18			38				
				7.5	5.	-5-	0 0 1 1	8.1	6.	8.1	7.5	7.5	· .	7.5	7.3	
	2			634 7.	757 7	652 7.	548 8		298 7	521 8	618 7	745 7	h23 7	h26 7	390 7	$\dashv$
	Spec	conductance (micromhos of 25°C)		9	7	9	57	532	25	52		71	± = ==================================		<u>~</u>	
		Dissolved oxygen ppm %Sat		2	85	83	102	114	114	103	5.8	39	3	91	85	
				9.5	т·6	8.3	9.6	10.0	80	± €	0.5	3.1	7.7	9.8	9.7	
		Te mp		641	52	09	99	72	74	80	94	82	19	54	6η	
		Dischorge in cfs		Tidal												
		Dote ond time sompled	1957	1/14	2/13 1630	3/11	1700	5/7	6/18	7/16	8/20	<b>9/10</b> 0745	10/18	11/26	12/13 1515	

a Iron (Fe), aluminum (A1), arsenic (Ae), capper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chramium (Gr), reparted here as  $\frac{90}{2000}$  except as shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination,

d Annual median and range, respectively. Calculated from analysee of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Labartee.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

AND STATE OF SURINGER WATER

ANALYSES OF SURFACE WATER TABLE B-14

Long Beach Dear of the Votes Granck (USCS), Partin Chemical Consulton (FCC), Matogolism Water District (MWD), Los Angeles Dear State Deportment of Water Resources (DWH), as inclosing Water District (MWD), Los Angeles Dear of Water Planes (I.ADWP), City of Los

CENTRAL VALLEY REGION

	P														
	d Anolyzed by 6		USGS	usgs	uses	uses	usgs	USGS	nscs	usg.s	usgs	us <b>c</b> s	nsgs	ns <b>c</b> s	
	oliform MPN/mi											Median 180	Max. 7,000	Min. 5	
	n ppm		10	20	25	30	10	30	10	15	25	#	#	9	
	N C PPM		£4	129	147	104	54	55	96	09	3	59	66	22	
	Hord os Co Total ppm		240	285	154	242	178	119	220	194	172	210	270	230	
	Per- cent sod -		22	51	53	54	55	89	54	96	55	55	56	57	
1	solved solids in ppm						485			·	479				
	Other constituents						Fe 0.03 A1 0.15 Zn 0.02 POμ 0.35 a.			3	Pe 0.01 A1 0.07				
	Silico (SiO <sub>2</sub> )						20				7				
a line	Boron (B)	36	0.34	09.0	0.45	0.39	0.18	0000	0.28	0.26	0.09	0.26	0.19	0.25	
million	Fluo- ride (F)	STA					0.03				0.2				
10		GRAYSON					1.8				3.1				
ports p	Chlo- ride (Ci)	NEAR GRA	191	170	102	179	3.69	36	159	146	3.61	162	218	192	
=	Sul - fate (SO <sub>4</sub> )	RIVER					1.92				1.71				
constituents	Bicor- bonote (HCD <sub>3</sub> )	JOAQUIN	240 3.93	3,11	130	168	151	1.18	151	163	156	3.02	3.41	3.46	
	Corbon- ofe (CO <sub>9</sub> )	SAN JOA	0.00	0.00	0000	0.00	0.00	0.00	0000	0000	0000	0.00	0.00	0.00	
Mineral	Potos- C srum (K)		4.0	3.4	2.4	2.8	3.0	0.05			3.8			-	
	Sodium (No)		14.8	138	3.48	130	104	29	119	115	101	118	156	142	
	Mogne- sum (Mg)		2.30	38	1.48	2.44	1.56				18				
	Colcium (Ca)		2.50	5.54	32	2.40	2°00	0.85 0.44			39				
	표 🛀		7.9	7.5	8.1	त्र 80	8.3	7.5	8.5	8.3	7.9	7.9	7.7	7.7	
	Specific conductance (micromhos at 25°C)		1150	1120	704	1080	836	7 182	971	910	815	1010	1270	1130	
			107	98	108	143	155	89	171	146	8	108	83	81	
	Dissolved oxygen ppm %Sa		12.2	<u>م</u>	11.0	13.6	13.7	&C	13.8	12.4	7.9	9.7	9.5	80	
	Te an		647	58	59	69	72	70	81	76	68	70	52	53	
	Dischorge in cfs		809	469	1310	127	673	1650	450	p+20	810	805	370	260	
	Date and time sampled	1957	1/10	2/21	3/21 1430	14/11	5/16	6/13	7/11	8/8 1320	9/27	10/17	11/22	12/19	

a iron (Fe), aluminum (A1), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as OOD except as shawn.

b Determined by addition of analyzed constituents.

d Annual median and range, respectively Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Division of Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitan Water Branch (USCS), Pacific Chemical Consultant (PCC), Metropolitant (PCC), Metropo t Field pH except when noted with a

ANALYSES OF SURFACE WATER

## ANALYSES OF SURFACE WATER TABLE B-14

CENTHAL VALLEY REGION

	Anolyzed bye		USBIC	изсп	USBH	usbr	USBR	USBR	USBR	USBR	MESU	USBR	USBR	USBR	
	MPN/ml														
1	bid - bid														
	Hardness os CaCO <sub>3</sub> Total N.C.														
	sod -		59	52	58	775	95	52	27	53	54	50	58	61	
Tatal	Solved solids in ppm		798	767	248	810	638	244	759	574	714	769	880	1120	
	Other constituents														
	Silica (SiO <sub>2</sub> )														
Hion	Boron (B)	25b)													
million per million	Fluo- ride (F)	E (Sta													
القا	Ni- trofe (NO <sub>3</sub> )	DRIDGE	1.9	2.5	2.5	3.1	1,2	0.0	2.5	0.0	0.0	4.3	0.0	3.7	
parts p	Chlo- ride (CI)	HILLS FERHY	213	135	196	197	169	53	184	167	198	187	278	331	
	Sul - fate (SO <sub>4</sub> )	AŢ HIU	210	77	147	164	124	777	3115	106	134	141	164	249	
canstituents	Bicar- bonate (HCO <sub>3</sub> )		191	122	160	188	151	59	153	145	158	139	171	189	
1 I	Carban – E	JOAQUIN RIVER	9.9	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	11	
Mineral	olds- sium (K)	SAN	4.3	0	2,7	2.0	1.2	0,0	٠ <u>.</u>	2.0	2.0	3.1	2.3	500	
	Sodium (No)	<u> </u>	179 4	106	150	150	124 1	39	124 3	210	134	377	184	255	
	Mogne- Sc Sium (Mg)		88	18	27	32	52	2,0	55	- 25	34	56	35	777	
	Calcium M (Ca)		643	39	9	- 73	764	18	50	4.5	41	9†7	- 53	02	
	*H 4		5.0	7.8	8.1	7.9	7.6	8.9	7.0	8.2	2.5	7.5	7.5	& &	
Specific	conductance (micromhas at 25°C)		1373	853	1187	1349	1051	362	9201	1059	1155	1228	17401	1804	
	Dissalved Cr axygen ppm %Sat														
			67	99	57	19	20	72	78	1/4	72	29	9	299	
	Dischorge Temp in cfs in 0F	hot Avail-													
	ond time sampled	1957	1-17 0926	2-13	3-15 0925	4-17	5-16	6 <b>-</b> 13 1235	7-18 1215	8-15 0935	9-12	10-16	11-14	12-16 1335	

o Iron (Fe), oluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as  $\frac{00}{000}$  except as shown.

b Oetermined by addition of analyzed constituents. c Grovimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Colif Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWO), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapalitan Water District (MWO), Las Angeles Dept. of Water Branch (LBDPH), or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated. f Field pH except when noted with \*

ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL VALLEY REGION

	paza.		 											
	Analyzad bye		USBR	UJBR	U.S.B.C	Usbit	Изык	USBR	USBR	USBR				
	bid - Coliform													
	F Co Lity Ppm M												_	
	N.C. D.E.		 							_		 		
	Hordness ae CaCO <sub>3</sub> Total N.C. ppm		 								<del>_</del>			
	Sod -		 											
Tatal	Solved solids in ppm			778	128	092	787	240	150	176				
	Other constituents													
	Silico (SiO <sub>2</sub> )		 											
uo	Baran S (B) (S		 											
per million	Fluo- B	28b)												
. I	rote (NO <sub>3</sub> )	ta. 28												
parts p		S)INIO									-		_	
60	Chio- ride (CI)	KSEX P												
ui s	Sul - fate (SO <sub>4</sub> )	RIVER AT JEHBEY POINT(Sta.												
tituenti	Bicar- bonate (HCO <sub>3</sub> )	RIVER												
Mineral constituents	Carban B	JOAGUIN									•			
Mineral	S Cor	SAN JO.												
	Potas- sium (K)	07												
	Sodium (Na)													
	Magne- sium (Mg)													
	Calcium (Ca)													
	* 4		 											
ific	(micramhos at 25°C)		~	~		25	8	0	7	00				
Spec	(micre		323	167	191	1325	606	300	227	24,8				
	gen %Sal													
	in of		55	63	7.17	12	20	20	63	56				
	Discharge Temp in cfs in OF	Nated												
	ond time sompled	1957	2-28 1200	5-29 1035	6-27	8-1	8-29 1130	9-26 1025	10-31	11-27 1105				

(Cr), reported here os and except os shown b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculated fram analyses of duplicate manthly samples made by Calif Dept at Public Health, Division of Laboratories.

E Mineral analyses made by USGS, Qualify of Water Branch (USGS), Pacific Chemical Consultont (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LADPH),

Long Beach Dept of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (OWR), as indicated f Field pH except when nated with #

	Analyzed by e		USGS	usos	uses	uses	USGS	USGS	nses	nsgs	uses	nsgs	USGS	nses	
	MPN/mi				-							Median 365	Max.	M1n.	
I ar	- bid - fy In ppm		#	10	25	30	15	35	91	30	ν.	~	r.	<b>v</b> 9	
	Hardnass as CaCO <sub>3</sub> Tatai N C PPM PPM		弘	73	1 23	236 109	63	9 10	4 65	99	4.8	931	331	90	_
			154	188	71	236	186	69	214	195	177	110	93	901	
q	god -		55	55	# #	51	2 55	3	53	75	5 52	51	22	42	$\dashv$
Total	salved salved in ppm						1492				1465				
	Other canstituents									9	Zn 0.01 A1 0.10				
	Silica (SiO <sub>2</sub> )	<u>2</u> 60					77				2				
Eign	Baran (B)		0.12	0.43	0.19	0-33	0.22	0.03	0.26	0.25	0.03	0.23	0.00	0.03	
million per million	Flua- ride (F)	BRIDGE STA					0.02	_			0.00				
15	NI- trate (NO <sub>3</sub> )						0.06			_	2.9				
parts pe	Chto- ride (CI)	MAZE ROAD	142	150	1.27	205	154	1.18	172	165	3.95	2.31	2.09	2.48	
.E	Sul - fate (SO <sub>4</sub> )	A.T					1.27		·		1,15				
constituents	Bicor- banate (HCO <sub>3</sub> )	RIVER	122	140 2.29	59	155 2.54	150	1.18	182	157	2.57	96	75	1.52	
	Carban B ate (CO <sub>3</sub> )	JOAQUIN	0000	0000	00.00	0.00	0000	0.00	0000	0000	0 00 0	0000	0000	00.00	
Mineral	Patas- Car Sium (K)	SAN JO.	2.8	4.0	1.6	5.0	4.0 0.10	2.0	0	°	5.0		l°.	- 10	
	Sodium Par	<u>ν1</u>	1	1		4		28 2	0 80	2,52		212	29.≢	52	
	Magne- Soc sum (Mg)		16 88 1.28 3.83	20 107	8.8 31 0.72 1.35	2.03 5.00	18 107	6.0	110	105	1.39 4.00	2.31	5° ± 29	2.52	_
				1	10	2	- <del> </del> -	-							
	Calcium (Ca)		36	42 2,10	10.70	2.69	2.25	0.90			2.15				
	1 0 0 0 0 H M		7.5	7.5	7.5	8.1	8.3	7.3	8.5	8.3	7.9	7.5	7.9	7.3	
Specific	canductonce (micramhos at 25°C)		747	867	305	1040	852	298	930	885	822	508	147	518	
			96	98	101	125	158	83	175	138	83	85	986	85	
	Dissolved oxygen ppm %Sa		0°11,64	8.0	10.9	11.7	13.9	7.5	14.1	11.8	7.5	7-7	9.1	9.3	
	Te or			22	45	99	72	70	81	76	70	69	55	53	
	Discharge Temp		1490	1200	3250	800	046	2300	960	710	1010	1880	20140	2070	
	Date and time sampled	1957	1/10	2/21	3/21 1500	1505	5/16 1500	6/13	7/11	8/8 1422	9/27	1510	11/22 0930	12/19	

a iron (Fa), aluminum (AI), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{200}$  except as shawn. C Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labarates.

Mineral analyses made by USSS, Quality of Water Branch (USSS), Pacific Chemical Caneutron (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water Branch (USSS), Pacific Chemical Caneutrons (DWR), as indicated

Long Beach Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

AND VEES OF SURFACE WATER

TABLE B-14 ANALYSES OF SURFACE WATER

uses, wanty of water Grant (USGS) Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept of Water Chemical Construction (USG), Despite the Consultant of Water Resources (DWR), as indicated the Machine Consultant of Water Chemical Consultant (USG), ACC Angeles Chemical Consultant of Water Chemical Consultant (USG), ACC Angeles Chemical Consultant (USG), Consultant Consultant (

CENTRAL VALLEY REGION

	5													
	Analyzed by a		USGS	USGS	USGS	USGS	USGS	USGS	uses	usgs	USGS	USGS	usgs	uses
	Coliform d MPN/mi											Median 23	Мах.	Min.
	- piq - th madd u		~	15	20	31	30	09	04	25	30	2	11	12
	N CO3		0	89	53	98	51	7	33	24	42	32	4	47
	Hardr as Ca Tatal ppm		20	168	151	186	135	.50	107	46	.5 <sup>μ</sup>	147	139	911
	T Po		42	52	50 ]	<u></u>	F 84	∄	43	47	50 15h	52	53 ]	54
ot ot	solved solids in ppm						312				387			
-						5	20,00		· · · · · ·					
	Other constituents					5					0.35 Pe 0.05			
	2 COUS					נא יוני ס	0.02 Zn 0.35 Ln			5				
	Othe					9	200			1	A1 0.16			
	Silico (SiO <sub>2</sub> )						77				26 F			
uo	Baran S (B) (S	<u>23</u>	00.00	0.32	0.39	0.27	0.13	00.00	0.26	0.15	0.19	0.17	0.13	0.22
millian per millian	Flua-B	STA.	0	<u> </u>	0	이	0.01	0	<u> </u>	이	0.01	<u> </u>	<u> </u>	0
15											<del></del> _			
parts per millian equivalents per mill	Ni- trate (NO <sub>3</sub> )	VDO1	D.C	- Cha	-110	mlm	3 1.4 0.02	+ m	el c	NIC.	0.02	m10	66	m/=
equi	Chlo- ride (Cl)	NEAR MENDOTA	6.7	3.36	101	3.33	2.48	24	1.72	1,61	3.16	2.90	2.79	2.34
							670	1	-	1	오코			1
ï.	Sul - fate (SO <sub>4</sub> )	RIVER					1.02	,			1.2			
canstituents	Bicar- banafa (HCD <sub>3</sub> )		28	122	119	107	103	52 0.85	1.48	89 1.46	137	140	112	1.44
		SAN JOAQUIN	0000	18	0.00	0.00	0 00	0000	0 00	0.00	0.00	0.00	0000	0.00
Mineral	Carban- ate (CO <sub>3</sub> )	SAN	1	1			-	-	0	0		0	0	0
2	Patas- sium (K)		0.02	2.8	3.4	3.1	2.5	0.04			0.10			
	Sodium (No)		6.9	3.78	3.13	3.26	58	19	37	39	3.22	3.13	3.09	2.74
			1.6	1.16	1.42	20 1.68 3	13 2	4.3		17	1.28 3	<u> </u>	<u></u>	10
	Magne- sium (Mg)						1				1			
	Calcium (Ca)		5.2	38	32	2.05	32	13			36			
	된 64		6.9	7.7	8.1	7.9	7-7	7.3	7.7	7.7	80	8.3	œ.	7.9
, i	conductonce (micromhas at 25°C)		73.9					_		_	1.6		-	
200	(aica aica aica			5 752	9 662	3 737	5 549	4 200	3 411	390	103 686	9 653	5 639	11.0 104 556
	gen %Sat		12.5 107	106	110	9.7 103	901	76	93	92		911	5115	10
	Dissolved oxygen ppm %S		12.5	10.9	10.9	9.7	9.6	© ©	7.9	7.7	φ.	10.6	11.5	11.0
	Te or		84	58	61	99	70	72	2/9	11	75	71	09	96
	Discharge Temp	Mean Daily	33	42	192	314	265	342	<b>†9</b> †ı	467	9011	63	91	142
	Date and time sampled	1957	17/1310	2/18 1335	3/18 1520	4/8 1320	5/13	6/10	7/10	8/5 1250	9/24 1400	10/14	11/19	12/16

a Iran (Fe), alyminum (Al), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reparted here as and except as shown.

b Determined by addition of analyzed canetituents

c Gravimetric determination,

d Annual median and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif, Dept of Public Health, Division of Laboratories.

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Lang Beach Dept. of Pub Health (LBOPH) or State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER TABLE B-114

CENTRAL VALLEY REGION

		Analyzed bye		USBR	USBR	USBR	USBR	บวยก	USBR	USBR	USBR	USBR	USBR	USBR	извк
-		Cottform MPN/ml													
	I I	- Piq Kal		-											
		Hardness as CaCO <sub>3</sub> Tatol N.C. ppm ppm													
		Sod 1		09	95	57	775	95	52	55	53	52	9	65	19
	Total	salved salids in ppm		860	964	876	1000	712	538	780	969	934	1540	1936	2711
		Other canstituents													
		Silica (SiO <sub>2</sub> )	-3-											•	
-	Ilion	Boran (B)	в. 30а)												
millio	per million	Flug- ride (F)	RIVER (Sta.												
parts per million	equivalents	rrate (NO <sub>3</sub> )	RCED RI	2,5	1,2	3.1	2.5	1.2	3.1	3.1	1.2	9.0	0.0	0	3.7
בא זקרוי	equiv	Chlo- ride (CI)	30VE M	213	122	229	257	194	135	221	179	277	515	685	332
⇒	s in	Sul – fate (SO <sub>4</sub> )	HIVER ABOVE MERCED	216	108	192	200	7777	107	777	108	186	340	707	251
Z Z Z	constituents	Bicar- bonate (HCO <sub>3</sub> )	JOAGUIN	204	124	182	163	164	118	160	277	184	203	229	185
		Carbon- ate (CO <sub>3</sub> )	SAN JO	0.0	00	0,0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27
	Mineral	Potas- Sium (K)		4.3	0.0	3.5	2.0	1.2	2.7	4.3	2.3	2.0	5.5	3.9	2.0
		Sodium P (Na)		186	101	169	177	120	108	148	115	196	343	627	258
		Magne- Sc sium (Mg)		33	19	<u>ا</u> اج	37	26	7 7	<u></u>	77	07	59	78	75
		Calcium (Ca)		52	39	61	1	52	77	56	77	61	91	122	- 30
-		*H. J		6.3	7.8	8.1	8.1 67	7.6	7.0	7.1	8.1	7.9	7.5	7.7	· 7
	pecific	(micromhos of 25°C)		1420	854 7	1374 8	1571 8	7 2911	408	1269	1108	1516	2824	2972	1825
		Dissalved oxygen ppm %Sa													
-				64	55	58	17	19	74	80	92	72	29	09	95
		Dischorge Temp in cfs in oF	hot Avail- able												
	ć	Lote and time sampled	1957	1-17 0926	2-13	3 <b>-15</b> 0933	4-17	5-16 1210	6-13 1225	7-18 1210	8-15	9-12 1255	10-16	11-14	1325

o Iron (Fe), aluminum (AI), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as \$\frac{\infty}{\infty} \text{except as shown.}\$

Determined by addition of analyzed constituents

c Gravimetric determination.

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e Mineral analyses made by USGS, Quality of Woter Branch (USGS), Pocific Chemical Cansultont (PCC), Metropolitan Woter District (MWD), Las Angelee Dept. of Woter & Power (LADWP), City of Las Angeles Dept. of Pub Health (LADPH),

Long Beach Oept of Pub Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resources (DWR), as indicated.

Long theory for the registry (1905), wester Christian Consistant (PCD), Metropolism Water Christian of Education (Manual Angels of Mose & Power & Carlotte & Carlotte & Power & Carlotte & Carlott ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL VALLEY REGION

Γ		9													-		
		Anolyzed by e			usgs	USGS	USGS	USGS	USGS	USGS	USGS	nsgs	usgs	USGS	USGS	USGS	
		bid - Coliform						_						Median 162	Max. 7,000	Min. 0.62	
	Tur	- piq -			7	25	17	9	13	30	30	3	2	12	~	10	
		000	υ E Z Z		34	£43	η5	89	79	13	25	52	641	Ę	32	19	
		Hordr os Co	Totol ppm		150	138	145	209	199	74	156	192	194	138	103	78	
	D.	cent cod –			53	54	50	641	50	911	24	53	52	50	52	52	
	Totol	solved solids	0						478	·			96h				
		Other constituents						, (	2n 0.01 Po <sub>14</sub> 0.55 A1 0.13 a				PO <sub>14</sub> 0.60 e. Fe 0.12 Al 0.06				
		Silico		102					31				7				
	illion	Boron		- d	0.30	0.29	0.16	0.16	0.17	0.27	0.16	0.16	0.29	0.19	0.07	90.0	
ports per million	per million	Fluo-	E	BRIDGE (STA					0.01				0.02				
1	۱ ا د	N		BRI					1.4	-	-		0.00				
	equivolents	Chlo-	_	MOSSDALE	3.04	94 2.65	98	165	160	1.30	165	150	154 0	94	2.14	1.61	
	2	Sul -	700	R A					51	+			1.04				
		Bicor - S		RIVER	141	116	126	148	146 2.39 1	1.21	160	171	2.90	1.90	1.43	1.18	
	constituents		Ť	JOAQUIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Mineral	tas- Carban-		SAN JO	+	1		ı		- 1	0	0		0	0	0	
		00.00			3.2	3.0	3.1	3 0.11	10	0 0.05	2 2		5 0.14	ml+	010	40	
		Sadium			3.48	1.31	3.00	4.13	93	30	4.22	4.31	100	63	2.26	39	
		Mogne- sum	(Mg)		1.25	1.21	1.20	22 1.78	20	7.1			20				
		Colcium	3		35	1.55	34	148 2.40	2.30	18			2.25				
-		ĭ	4		7.5	7.5	7.7	ů,	φ. α.	7.7	8.5	€°	<i>⊒</i>	7.5	7.3	7.3	
	Specific	conductance (micromhas			969	635	626	880	852	304	8 493	853	883	58 <sup>th</sup>	1473	349	
-		1	%Sot		91	92	06	149	116	100	119	105	137	06	89	68	
		Disso	mdd		10.2	9.6	0.6	14.3	10.3	٠ <u>٠</u>	0.01	8.9	12.0	8.9	7.6	6.6	
		Temp in OF			51	22	09	119	2	12	4	76	73	19	53	51	
		Dischorge Temp			Tidal Area												
		Dote ond time sampled		1957	1/16	2/14	3/12	4/16 1040	5/8 0845	6/18	7/16	£/20 1100	9/11	10/23	11/26 0720	12/12 0940	
L			-					-									

o fron (Fe), aluminum (Al), arsenic (Ae), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as ehawn. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calcurated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Laboratories.

• Minaral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angelos Dept. of Water & Dower (LADWP), City of Los Angelos Dept. of Pub Health (LADPH),

Lang Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

	Analyzed bye		USBR	US BR	USBR	USBR	กละบ									
	bid - Califarm Ity In ppm MPN/ml															
Tur	bid – C ity in ppm										_				 	
	N.C.														 	
						9	10	27	55	53	53	57	57	99		 
lo!	solved sod – salids ium in ppm	,	0 57	0 57	4 53	0 56	6 55			757			-		 	 
ē			099	750	757	530	9777	500	632	£77	977	200	820	762	 	 _
	Other canstituents															
	(SiO <sub>2</sub> )	27a)														
per million	Baron (B)	WATER CONFANK (Sta														
	Fluo- ride (F)	R COME													 	
equivalents per mil	Ni- trate (NO <sub>3</sub> )	N WATEI	3.1	3.1	2.5	£047	1.2	0.6	1.9	00	9.0	3.1	0.0	5.0		
equi	Chia- ride (CI)	AT PATTERSON	151	109	110	145	117	077	159	100	113	144	242	210	 	
n s	Sul - fate (SO <sub>4</sub> )	R AT PP	149	187	79	101	78	29	124	98	68	87	155	167		
canstifuents	Bicar- bonate (HCO <sub>3</sub> )	IN RIVE	186	113	116	136	136	65	157	165	242	140	185	179		
- 1	Carbon- ate (CO <sub>3</sub> )	SAN JOAQUIN RIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	7.8		
Mineral	Polas- (Sium	SAL	3.9	0.0	1.6	0.0	1,2	2,0	3.1	1.6	2,0	3.1	2.3	1.6		
	Sodium (Na)	<u> </u>	132	91	82	106	89	30	121	86	84	011	168	164		
	Magne- S sium (Mg)		772	17	18	18	=	7.4	22	17	8.3	16	31	32		
	Calcium (Ca)		45	32	32	43	7/1	16	48	39	64	143	09	79		
	Hd A		8 2	- T	2, 2	7.9	7.4 7	7.9	7.3	1	7.5	7.7	7.9	8.7	 	
pecific	(micramhas ot 25°C)		1072	722	902	895	726	290	1011	807	755	674	1297	1272	 	
														<del></del>		
	Dissalved oxygen ppm %Sa															
	Temp		90	56	57	19	68	71	77	7,2	72	29	79	99		
	Discharge Temp in cfs in oF	Not Rated														
-	Date and time sampled	1957	1-17 1015	2-13 1300	3-15 1030	4-17 1000	5-16 1120	6-13 1145	7-18 1125	8-15 1010	9-12	10-16 1150	11-14	12-16 1245		

a Iran (Fe), aluminum (A1), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents

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## e monthly annies ands by call figure by Public Hauth, Division of Labbrestories seminal Consultant (PCCS), Metropullan Worse Disperse (Media of Consultant Worse in Fower (Callett), City of Lab of Sections (Callett) of Seles Despire Despire of Worse (Callett), as particular (Callett), City of Lab ANALYSES OF SURFACE WATER

Anna Brown made by USCS, during of Works through USCS, before the state of deplease of deplease of deplease the state of the present of the present of the state of the present of the state of the present of the state of the st

CENTRAL VALLEY REGION

		Anolyzed			USBR	USBR	озвя	USBR	USBK	USBR	USBR	บรยส	USBR	บวยส	изви					
		bid - Coliform ity MPN/ml																		
	Į į	- piq - liy n ppm																	-	
		Hardness as CaCO <sub>3</sub> Total N.C.																		
		sad -			92	53	27	- 05	97	87	87	67	67	55	59					$\dashv$
	otal	solved s			278	027	730	426	386	342	77277	927	0657	027	558					$\exists$
		Other canstituents					7						7	7						
		Silica (SiO <sub>2</sub> )																	 	
5	ittion	(B)		1116)																
r millio	per million	Fluo- ride (F)		SLOWCH (9ta																
parts per million	equivalents	Ni- trate (NO <sub>3</sub> )			1.2	0.6	3.1	2.5	1.2	1,8	1.9	0.6	0.6	1.0	4.3					
•	equiv	Chia- ride (CI)		VE SAL	07	129	98	88	75	77	106	118	2048	î	136					
	٥	Sul - fate (SO <sub>4</sub> )		RIVER ABOVE SALT	28	8	63	72	79	55	89	29	228	7,8	23					
	constituents	Bicar- bonate (HCO <sub>3</sub> )		QUIN RE	740	124	156	149	140	126	146	141	101	181	270					
- 1	- 1	Carban - E		SAN JOAC	1.5	0.0	0.0	0	0,0	0.0	0,0	0,0	0.0	00	000			-		
:	Mineral	Potas-C Sium (X)			2.7	1.6	2.3	2,0	1.2	2.0	3.5	1.6	킈	3,1	2.3					
		Sodium P (Na)	-		45	91	72	92	19	26	774	28	300	88	128					
		Magne- So sium (Mg)	-		7.2			_ <u>_</u>	7.8	A	7	16	188	7			-		 	
		E (c	1			2 17	18		<u> </u>	1		<u> </u>			138					$\dashv$
H		pH * Calcium f (Ca)	-		8.4 26	7.9 42	8.1 38	7.7	7.6 47	7.3	7.3	8.0 42	7.4 322	7.5 39	7.7					
	j	ance T () o:	-		90	7.	60							7	7					
		(micramhas at 25°C)			399	792	069	989	1255	522	724	798	9919	787	919					
		Dissalved axygen ppm %Sot	_																	
L			-																	
		s in o	- 1	- T	7,8	24	57	65	69	75	78	73	72	70	61					
		Dischorge Temp in cfs in oF	Not Avail-	[q#																
	0,00	and time sampled	1957		1-17 0850	2-13 1455	3-15 0855	4-17	5-16	6-13 2051	7-18	8-15 0910	9-12	10-16	11-14	12-16				

a Iron (Fe), oluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 00 except as ehown.

b Determined by addition of analyzed constituents

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d Annual median and range, respectively Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Loborataries.

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Long Beach Dept of Pub Health (LBDPH) or United States Bureou of Reclamation (USBR) or State Deportment of Water Resources (DWR), as indicated. f Field pH except when noted with #

		Anolyzed bye			USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	USBR	US BR				
-	_	Coliform A MPN/ml		,															
	ur- l	bid - Coli							-										
	Ĕ	N.C.											-						
		Hordness oe CaCO <sub>3</sub> Totol N.C.																 	
	Per-	cent d sod –			35	1.9	33	22	21	30	31	36	31	36	33			 	_
	<u></u>	solved solids in ppm			208	132	150	06	92	126	132	126	150	180	160				4
		Other canstituents																	
		Silico (SiO <sub>2</sub> )															_		
non	per million	- Boron (B)																 	-
parts per million	1 1	Fluo- ride (F)		112b)															-
parts p	equivolents	rrate (NO <sub>3</sub> )		LANDING(Sta.	1.9	1.9	0,0	9.0	1.8	0.0	0	0	0.0	0.0	9.0				
	nbə	Chlo- ride (CI)			37	0.0	50	8.2	4.6	10	12	18	15	25	23				_
.9	- 1	Sul - fate (SO <sub>4</sub> )		ANDREAS	39	19	35	9.1	Ħ	13	9.6	7	8	50	772				
	Constituents	Bicar- bonate (HCO <sub>3</sub> )		AT SAN	99	077	59	51	977	56	71	79	78	82	77			 	
	minerol cor	Carbon- ote (CO <sub>3</sub> )		N RIVER	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	00	0.0	0.0				
	i Mi	Potas- sium (K)		JOAGUIN	0,0	0,0	1.9	1,2	0.0	0.0	1.6	1.6	2.0	1.6	2.3				į
		Sodium (Na)		SAN	777	0.5	17	6.2	7.6	10	12	18	15	50	16		_		
		Magne- sium (Mg)			100	5.5	7.4	2.3	4.5	5.2	7.3	3,8	8.2	8.3	7.0		-		
		Colcium (Ca)			22	12	16	77	7.8	E	12	12	77	16	15				
		# E 4			8.0	7.2	7.2	7.2	6.9	6.8	7.3	7.2	7.3	7.7	7.3				9
	Specific	conductance (micromhas of 25°C)			333	124	231	131	120	162	185	227	199	240	213				(10)
																			1000
		Oisso oxy ppm																	) Jue
L		Temp in of			\$	52	57	63	89	7.2	70	20	202	79	56				A1) ore
		Discharge Temp in ofs in of	Not													,			endie
	4,00	and time sampled	1957		1-28	2-27	3-26 1430	5-1 1105	5-27 1130	6-24 1500	7-30 1530	8-26 1500	10-1	10-29	11-25				o fron (Fe) oluminum (A) oreanic (As) connect (Ca) load (Da) memore (As) -1- (7-)

000 8xc b Determined by addition of analyzed constituents c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e. Mineral analyses made by USGS, Qualify of Water Branch (USGS), Pacific Chemical Consultant (PGC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Dacific Chemical Consultant (PGC), Metropolitan Water Angeles Dept. of Water Branch (LBDPH), City of Las Angeles Dept. of Pub. Health (LBDPH) or United States Bureau of Reclamation (USBR) or State Department of Water Resaurces (DWR), as indicated. f Field pH except when noted with #

TABLE BASH WATER

Mineral motyces, muse by 1752s, Occity or when the motives of distinction motify compare by cold. Desire of Best Mineral States of Cold and Cold an

		Anolyzed by e		usos	usas	usas	usas	USGS	usos	usas	uses	uses	uses u	uses	usgs	
-	•							D		<b>5</b>						-
		MPN/mi											Med tan 96	Max. 7,000	Min. 2.3	
	Ţ	- bid - ty mgg u		~	20	20	0	20	45	10	20	6	#	īv.	#	
		Hordness as CoCO <sub>S</sub> Total N C		142	61	20	111	3	9	70	09	142	18	5π	27	
				140	174	89	236	138	57	197	190	173	100	8	102	
-	D,	a od -		52	52	<b>С</b> ф	64	52	142	51	53	50	50	52	53	
	Totol	solved solids in ppm		360 <sup>b</sup>	q Otth	159 <sup>b</sup>		351 <sup>b</sup>				435p				
		Other constituents		Pe 0.00	Fe 0.03	Fe 0.03	י פר רי מי	Zu 0°07			0 0	Fe 0.02 A1 0.10 435b				
		(S:02)	~	7t	27	和		130				33				
c	millian	Boron (B)	N 27	0.24	0.29	0.2 0.00	0.24	0.12	0.02	0.23	0.22	00.00	0.30	00.00	00.00	
million	per m	Fluo- ride (F)	S (STA	0.01	0.01	0.01		0.02				0.00				
parts per	equivolents	Ni- trote (NO <sub>9</sub> )	VERNALIS	2.9	1.9	1.8		1.7			1	6.9	,			
٩	equiv	Chio- ride (Ci)	NEAR	3.16	3.64	1.13	199-	3.05	0.79	154	155	3.55	2.00	1.80	2.17	
	٩	Sul - fote (SO <sub>4</sub> )	RIVER	38	1.49	22		41 0.85				1.02				
	constituents	Bicar- bonote (HCO <sub>3</sub> )	JOAGUIN	120	138	58	2.49	1.95	1.02	155	159	160	100	1.29	1.51	
- 1		Carbon- ote (CO <sub>3</sub> )	SAN JO	0.00	0.00	0.00	0000	0000	000	0000	0000	0000	0000	0000	00.00	
:	Mineral	Patos- C srum (K)		2°t	3.0	1.6	ц. ц 0.11	3.5	1.7	<u> </u>	-	4.6	<del></del>			
		Sodium (No)		3.22	3.83	28	137	3.04	20	96	4.31	3.57	146	1.91	52	
		Magne- sium (Mg)		151	1.48	6.8	1.98	1.07	4.7			1,40				
		Colcium (Co)		32	100 T	0.80	2.74	34	0.75			41 2.05				
		됩		2.	7.5	7.5	8. 7.	80	7.3	7.8	8.1	8.1	7.5	7.5	7.5	
	Specific	conductance (micromhos of 25°C)		645	177	275	991 8	621 8	224	845	851 8	765	1455	404 7.5	644	
		1 6		96	95	101	140	149	88	166	134	93	96	90	87	
		Dissolved oxygen ppm %S		11.3	9.6	10.8	13.0	13.1 149	7.9	13.4	11.1	a.	8.7	9.6	9.5	1
		Te ori		611	59	55	67	72	70	81	78	17	69	55	53	
		Dischorge Temp		1900	1440	m200	616	1510	3890	870	791	1350	2360	2420	2450	
		Dote ond time somplad	1957	1/10	2/21 1245	3/21 1550	4/11 1545	5/16 15 <sup>45</sup>	6/13 0955	7/11	8/8 1500	9/27 0840	10/17	11/22	12/19	

o Iron (Fs), aluminum (AI), orsanic (As), capper (Cu), lead (Pb), manganses (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Daterminad by addition of analyzed constituents.

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d Annual median and range, respectively. Calculated from analyses of duplicate marthy complee made by Callf, Dept. of Public Health, Division of Laborates.

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	P														4,		
	Anolyzed bye		USBR	изви	USBR	USBE	USBR	UJBR	USBR	USBR	USBR	USBR	NE SU	USBR			
	bid - Caliform ity MPN/mi																
	Pid - C																
	CO3 N.C.																
	sod -		99	55	55	57	55	45	52	12	52	52	54	57			
Total	Salved solids in ppm		700	574	9777	536	542	192	576	516	530	799	962	810			
	Other canstituents																
	Silica (SiO <sub>2</sub> )	276)															
Hion	5	(Sta.															
million per million	Fluo- ride (F)	ISTRIC															
9	1 _	THRIGHTION DISTRICT(Sta.	3.7	3.1	2.5	1.9	1.2	0.6	2.5	0.6	0°6	5.6	7.4	4.3			
ports p	Chlo- ride (CI)	THHIGA	168	121	Ħ	115	134	04	154	135	132	168	217	219		_	
5	Sul - fate (SO <sub>4</sub> )	STAIRSTAIRS	144	136	88	83	476	27	113	61	73	158	154	151			
constituents	Bicar – bonate (HCO <sub>3</sub> )	ATS TSA		194	120	148	150	179	174	163	156	175	200	193			
1	Carban- ate (CO <sub>3</sub> )	E	80	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	10			
Mineral	Patas- C sium (K)	HAALLEN BILLEN	3.5	1.6	1.6	0.0	0.0	2.0	3.1	1.6	2.0	3.1	2,3	1.6			$\exists$
	Sodium (Na)	20 A CT	133	122	78	76	106	788	113	35	96	136	158	160			7
	Magne- sium (Mg)		27	17	16	22	18	7.6	25	7.7	50	36	32	29			7
	Calcium (Ca)		45	58	34	45	97	16	87	04	43	97	09	52			
	* E		8.5	8.1	8,0	7.8	7.5	6.7	7.4	8.0	7.7	7.3	7.7	8.7			
9	conductance (micramhos at 25°C)		1060	976	713	682	885	281	766	933	839	1228	1315	1281			
																	$\dashv$
	Dissalved oxygen ppm %Sa																
	Temp in oF		20	57	58	<b>T</b> 9	89	7.1	75	76	72	29	9	58			
	Discharge Temp in cfs in PF	Nated															
	Date and time sampled	1957	1-17 1130	2-13 1145	3-15 1121	4-17	5-16	6-13 1050	7-18 1015	8-15 1140	9-12 1115	10 <b>-</b> 16 1130	11-14	12-16			

a Iron (Fe), oluminum (A1), arsenic (As), copper (Cu), Isad (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 000 except as shown.

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## ANALYSES OF SURFACE WATER

eatth, justicion of table fatter of Water to Fusion (LADWP), City of Lim Angales Dept of Pub Health (LADPH), in Willer Hespirical (DW II), in Limits of the Committee of Courts, and the Courts of the

CENTRAL VALLEY REGION

	Anolyzed		USBR	UŠuk	กราชห	USBR	Изык	USBR	USBR	3,520	Heco	USBK	Nation	USBR	USBR	USBR	NHSC.	NESU	אצירון
	iliform IPN/ml																		
	bid- Coliform Ify MPN/ml																		
	Hordness as CoCO <sub>3</sub> Total N.C. ppm ppm																		_
	Sod - as							36					3						$\dashv$
I ctol	solids solids in ppm		52	78	99	76	20	779	79	75	58	9	75	62	779	92	99	79	89
	Other constituents						-												
	Silica (SiO <sub>2</sub> )																		
r million	o- Boron	34p)																	
		USE (Sta						0,0					9.0						
ports pe	Chia- trade trade (CI)	AT WHITEHOUSE(Sta.						5.7					6.7	7,1	5.1	4.0	7.8	5.7	0.5
	Sul - Ch fote ri (SO <sub>4</sub> ) ((	RIVER AT		<u> </u>				-	-				1.4	-1	-1	٩	-1	-1	2.0
constituents in	Bicar Su banate fo (HCO <sub>3</sub> )	JOAQUIN RI						51 07					33		<del></del>				
	1 1	SAN JOA						7 0.0					0.0						-
Mineral	Potas- Carban- sium ate (K) (CO <sub>3</sub> )			<del></del> -				-					01						
	Sodium Pot							8.5 2.0					6.9	6.2	6.9	6.9	9.2	8.5	6.9
	Magne-Sau Sium (N					-		3.2		<del></del> -			0.7	1		1			
	Colcium Mo							7.2					7.2						
-	I.							6.7				4	6.9						
	conductance (micramhos at 25°C)		65	88	96	133	66	103	100	70	29	75	87	7/2	77	06	8	80	6.5
	Dissalved axygen ppm %Sat																		
	Temp in oF	Q	27	37	55	62	19	62	20	59	70	7.7	23	63	79	57	52	97	24
	Discharge Temp in cfs in 0F	AVETAGE MEAN DAILY	132	20	52	77	56	29	77	8\$	37	23	36	34	56	77	26	%	59
	Dote ond time sompled	1957	1-15	1-29	2-12 0930	2-26 1100	3-12	3-26 1300	4-9 1300	4-23	8-27	9-10	9-24	10-15	10-29	11-12	11-26	12-11	12-24 0945

o tran (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as  $\frac{\sqrt{10}}{C}$ Oexcept as shown.

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\* Field ph except when noted with e ANALYSIS OF SURFACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

	Analyzed by e		USGS	USGS	nses	NSG8	USGS	nsgs	nsgs			USGS	USGS	usgs	
	Coliform d MPN/ml														
	- piq - th - bid - - bid - - W		0•3	7	5		9•0	4.2	2			_	9•0	-	
	Hardness as CaCO <sub>3</sub> Total N C		0	0	0	0	0	0	0			∞	<i>⇒</i>	2	
	Hard os C Total		91	57	#	53	95	58	100			74	89	43	
	cent cent ium		32	31	22	28	30	29	33			38	36	29	
Total	solved solids in ppm						109								
	Other canstituents					2	Po <sub>1</sub> 0.00 Fe 0.03								
	Silica (SiO <sub>2</sub> )						27								
E S	5		0.03	0.03	0.02	0.06	0.01	0.11	0.14			0.03	0.03	0.00	
millian per millian	Fluo- ride (F)	3					- 1		•						
parts per million equivalents per mil	· _	OR (ST					0.00 0.01								
g	Chlo- ride (CI)	SOUTH HONCUT CREEK NEAR BANGOR (STA.	14.0 0.11	6.5	3.0	4.5	5.3	4.2	16			0.37	0.31	4.5	
<u> </u>	Sul - fate (SD4)	EK N					7.3		,	-					
constituents	Bicar - S bonate (HCO <sub>3</sub> ) ((	UT CRE	96.0	20	58	76	1.31	1.38	125			1.31	1.28	50	
Mineral cons	Carbon – E	TH HONG	0000	0 000	0000	00.00	0000	0000	0000			0000	0 00	00.00	
Min	S E (X	200	0.00	01	0.01	010	0.4	60.0							
	Sadium Po (No)		0 0	12 0.2 0.52 0.01	5.7	9.6 0.2	0.48	11 0.3	23			210.91	18	8.0 0.35	
			- - -	9 2		90		9	1.			0	0	0	
	Magne- sum (Mg)		1.4	7.2	04.0	5.6	5.7	5.6							
	Calcium (Ca)		9.6	11	9.8	12	13	14							
	Ę w		7.3	7.7	7.5	7.7	7.9	7.9	7.7			7.5	7.5	7.3	
	Specific conductonce (micrombos at 25°C)		132	160	108	149	154	155	286			246	216	103	
	- 5		100	102	66	98	96	96	96			1.6	46	46	
	Disso		13.5	11.2	10.9	₩.6	8.3	7.9	8.0			6.6	10.5	11.0	
	Te ap		37	53	52	<del>1</del> 19	774	29	80			<del>1</del> 19		50	
	Discharge Temp in cfs in oF		3.5	5.0	62	7.0	5.6	3.7	0	dry	dry	1.2	1.0 54	91	
	Date and time sampled	1957	1/10	2/13	3/12	4/8 1325	5/6 1535	6/10 1430	7/8	Aug.	Sept.	10/22	11/12	12/20	

o Iron (Fe), aluminum (AI), areenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromlum (Cr), reparted here as  $\frac{\partial Q}{\partial O}$  sxcept as shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

monthly complex made by Callf Dept or Fublic Medith, Division of Laborotories middle Consulted Consultation Water District (MWD), Los Anueles Dept of Water & Power

	Analyzed by e			USGS	nses	uses	nscs	nsgs	USGS	uses	USG S	uses	USGS	usas	USGS	
	Coliform d MPN/mi												Median 62	Max. 7,000	Min. 2.3	
	- Pid			2	6	35	2	15	25	2	2	«С	20		12	
	Hordness as CaCD <sub>3</sub>	O E		0	0	٦	0	0	0	0	0	0	0	0	0	
		Total		79	118	75	109	42	34	100	106	46	100	103	95	
	sod -			21	24	17	5ф	22	17	25	26	25	23	24	24	
Tatal	Solved solids	و <b>م</b>						75				171				
	O year						0000	0.20 7			, d	u <sub>2</sub>				
	Silica	(2016)						17				35				
lion	Baron	ê a	_	0.00	500	0.09	90.0	0000	0.00	0.08	0000	0.00 0.01	0.07	00.00	0.00	
million per million	Fluo-		2					0.01				000				
1.7.1	Ni -		VS S					1.2				1.3				1
parts pe	Chlo-	$\dashv$	VEAR MOUTH (STA	5.2	10	3.0	9.0	1.6	0.03	8.5	9.6	0.20	8.0	7.0	8.7	
		$\dashv$							ات			1				-
Ē	Sul -	- 1	HIVER					4°4 0°0				0.23				
constituents	Bicar -	HCO <sub>3</sub> )	US R	1.74	2.57	1.07	146 2.39	59	0.74	134	150	133	131	139	2.08	
const			STANISLAUS	0 00	0000	0000	000	0000	000	000	000	000	000	000	000	1
Mineral	<del></del>	(CO <sub>3</sub> )	STAI	- 1			1		1	0	0		0	0	0	$\frac{1}{2}$
1	Potos-			1.6	0.06	1.2	2°4 0°0	0.03	0.03			2.8				
	Sadium	(N 0)		10 1.6 0.44 0.04	0.78 0.06	5.1	16 2.4 0.70 0.06	5.7 1.2 0.25 0.03	3.3	15	17 0.74	15	14	15	14 0.61	
	Mogne-					6.4	11 0.93	2.9	2.1			8.4				1
				20 7.1	28 12 1.40 0.96	0.55 0	1.25 0	12 0.60	0.50			1.20		·		1
	Colcium	2													10	-
-	7 8 C	•		8 7.5	8 8.1	7 7.5	9 7.5	110 7.3	88.2 7.1	0 8.1	278 7.7	2 7.7	8 7.7	251 7.7	250 7.5	-
Specific	conductonce (micromhas			198	298	127	692			250		252	248			
		%Sat		107	128	101	100	<del>2</del> 8	18	132	108	7,4	106	96	46	
	Diesolved	Edd		12.4	13.0	57 10.5	9.3	7-9	7-7	10.6	0.6	6.7	9.6	54 10°4	10.3	
	Te an			148	59		19	65	89	8	78	70	70	54	53	
	Oischarge in cfs			310	180	714	93	193	1010	66	85	225	297	195	210	
	Date and time		1957	1/10 1640	2/21 1355	3/21 1635	4/11 1640	5/17	6/13	11/2	8/8 1530	9/27	1610	11/22	12/19 1230	

o Iran (Fe), aluminum (A1), areenic (Ae), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

Determined by addition of analyzed conetituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Lobaratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Matropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LADPH),

Lang Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

TABLE B-14
ANALYSES OF SURFACE WATER
CENTRAL VALLEY REGION

	Analyzed by a			nsgs	nses	nsgs	. sosn	ns <b>g s</b>	nsg s	nses	USGS	nses	SDSU	uses	nsgs	
	Salifarm d MPN/mi												5 Median 2.3	Max. 2,400	Min. 0.045	
-	- Pig				<i>=</i>	2	2	2			7,	#	<u>~~~~</u>	8		
	Hardness as CoCO <sub>3</sub>	- PPTC		0	0	2	7	0	0		0	0	19	~	- 5	
		Tatal		84	38	34	24	18	17	19	23	25	61	33	36	
	sod -			15	18	<i>=</i>	17	21	22	19	18	15	10	7.	15	
Tatal	Salved solids	in 991						35				2 41				
								Po <sub>1,</sub> 0.00 Fe 0.03			( o o	S. L				
	Silica	(2:02)	3					디				10				
ion	Boron	æ	. 298	0000	70.0	0.07	0.04	0.0	0.00	0.00	0.03	0.00	0.0	0.02	0000	
million per mi	Fluo-	(F)	1 (57.					0.0				0.00				
0		(NO <sub>3</sub> )	Q H					0.00		_		0.01				
s in equivalents	<u> </u>	((C))	ON TULLDCH DAM (STA	2.5	2.0	1.6	0.5	0.01	0.00	0.8	0.02	0.0	0.03	0.5	1.8	
<u> </u>	Sul -	20,0	BELOW					2.9				0000	•	•		
	Bicar S		RIVER	1.02	147	35	28	23 0	25	22 0.36	33 0.54	36 0.59 0.	0.84	37	42 0.69	
		(00)	SLAUS	0.00	0000	00.00	0000	0000	0000	0.00	0000	0000	0000	0000	0000	
Mineral	F-	(X)	STANISLAUS	0.03	0.03	0.02	0.02	0.02	0.02			0.03	10	10	0	
	Sadium			4.0	3.8	0.11	2.2	2.2	2.2	2.0	2.4	2.1	3.3	2.5	2.9	
		(Mg)			3.2	3.8	31.0	0.0	90.0	1		1.7				
				12 4.4 0.60 0.36	10 0.50		6.4	0.30	5.6			$\frac{7.2}{0.36}$				
-	Calcium	<u>ĕ</u>				7.4 0.37										
	, 00 S	<b>4.</b>		7.3	4 7.3	8 7.23	7.1	6 7.3	49.9 7.1	4 7.1	3 7.1	7.3	7.3	73.5 7.3	89.4 7.3	
0	(micramhas	67 18		113	93.4	70.8	58	148.6	. 64	η5°η	57.3	09	134	73.		
		%Sat		101	103	66	95	93	101	66	93	96	78	96	100	
	Dissolved	E dd		13.1	12.1	1.7	10.9	10.0	60 10.1	9.6	8.7	9.5	7.3	10.3	10.9	
	Te ap			140 ]	147	47 11.7	641	54 ]	09	63	99	η9	99	56 10.3	53 ]	
	Discharge Temp			Not Rated												
	Date and time		1957	1/10	2/20 1515	3/21 1050	μ/11 1010	5/16 0920	6/12 1300	7/11	8/8 0910	9/26	10/17	11/21	12/18 1530	

a Iran (Fe), aluminum (AI), oreenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shawn. b Determined by addition of analyzed constituents.

ANALYSES OF

c Gravimetric determination.

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• Minaral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Los Angelee Dept. of Water & Power (LADWP), City of Loe Angelee Dept. of Angelee Dept. of Water Resources (OWR), as indicated

Lang Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (OWR), as indicated

ANALYSES OF SURFACE WATER HABLE B-14

morthly complee mode by Galif Dapt of Public Health, Division of Laborstoriae motor Censulane Heggs having mission (Sonsulane Heggs Bart of Water Personnes (Health), I as Angelee Dart of Water Personnes (Health), I as Angelee Dart of Water Pe

CENTRAL VALLEY REGION

	D														
	Analyzed by e		USG S	usgs	nses	nses	nses	USGS	USGS	USGS	USGS	USGS	USGS	USGS	
	Caliform d MPN/ml											Median 620	Max.	Min. 6.2	
	- p.d.		15	20	20	20	00	69	0+	20	20	12	#	2	
	CO <sub>3</sub>		103	78	30	4	37	7	20 40	29	7	28	32	36	
	Hardn as Ca Total PPm		176	176	107	115	124	647	82	102	104	140	107	108	
	End -		145	647	42	42	45	42	42	43	47	51	51	51	
Total	solved solved in ppm		391	428	236		269				237				
	Other constituents		Fe 0.01	Pe 0.03	F. 0.08		A1 C.15 PO <sub>L</sub> 0.40 Cu 0.01 Zn 0.02				Po <sub>b</sub> 0.30 Fe 0.05 Al 0.10 Cu 0.07				
	Silica (SiO <sub>2</sub> )	100	21	22	22		₹°9				디				
noili	Baran (B)	STA.	0.23	0.22	0.09	0.11	0.15	0.12	0.02	0.09	0.03	0.16	9000	0.11	
Per million	Fluo- ride (F)	LAND	0.3	0.01	0.02		0.2				0.00				
parts per millian equivalents per mil	ni- trate (NO <sub>3</sub> )	CE IS	14	6.3 0.2	ц.2 0.07		2.0				1.6				
equive	Chlo- ride (CI)	STOCKTON HIP CHANNEL ON RINDGE ISLAND STAR 100	3.30	3.52	1.52	1.92	2.23	0.70	39	1.38	1.89	2.93	2.23	2.31	
in	Sul - fate (504)	ANNEL	1.35	72	93		35				13				
constituents	Bicar- banate (HCO <sub>3</sub> )	IP CH	89	1.97	1.54	1.48	1.74	51	76	1.46	113	136	1.51	1.44	
	Corban - B	TON	0.00	0000	0000	0000	0000	0000	0000	000	0000	0000	0000	0000	
Mineral	Potas- Co sium (K)	STOCK	2.9	3.1	3.5	2.4	- 1 00	0.05	- 1	- 1	3.th				
	Sodium Po (No)		2.96	3.52	1.61	1.74	ц <u>9</u> 2.13	0.74 0	1.17	35	1.91	2.87	52 2.26	52	
	Magne- Sc s.um (Mg)		1.47	118	0.89	1,00	13 2	9.4			0.83	18	12	7	
	Calcium Mc		41 2.05 1	1,1	25 0	30 1	-45 1	12 0.60			25 0				
H		-		1 2 2	<u>.</u>			<u>ر</u>	<b></b>	<u>~</u>		7	2	٦.	
0	H ₩		7.1			8	8.1	7	7.4	1 7.3	7.4	7.7	7	7.1	
Specifi	conductone (micramhas at 25°C)		469	752	104	1438	6617	191	292	341	433	61 <sup>4</sup>	483	<b>43</b> 11	
	0		78	71	73	128	112	17	94	87	₩	96	63	55	
	Disso oxy ppm		9.0	7.9	7.4	12.0	10.1	т•9	7.5	7.2	6.9	9.5	6.8	6.3	
	Te no F		64	51	59	99	20	20	82	78	64	179	54	647	
	Discharge Temp in cfs in oF		Tidal												
	Date ond time sampled	1957	1/14	2/13 1440	3/11 1445	4/15 1525	5/7	6/17	7/16 1545	8/19 1510	9/10	10/22	11/27 0915	12/11 1410	
_	_														

o from (Fe), oluminum (A1), oresnic (Ae), copper (Cu), teod (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here on  $\frac{QQ}{\Delta GQ}$  except on shown.

b Determined by addition of analyzed constituents. c Gravimetric determination.

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ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-14

CENTRAL VALLEY REGION

	Anolyzed by e				0665	nses	nsgs	nsgs				nses		uses		
	In ppm MPN/mi											Median USGS 5.6	Max. 2,400	Min. 0.23		
	D - Did 11 y 11 y		-		20	6	6	1.4				Ä		50	 	
	N C PPM				13	22	∞	9				18		14		
					:: ::	138	133	133				167		126	 	
	L pos				19	18	19	19				18		24		
P 0	Solved solids in ppm						127									
	Diner constituents					# 60 0 • #	Cu 0.04 Zn 0.01									
	(SiO <sub>2</sub> )						100					-1		N		
noillion	Boron (8)	3		_	0.13	0.03	0.00 0.00 0.09	0.20				11.0		0.17	 	
ports per million	Fluo- ride (F)	(STA 1					0.00									
irts per	rote (NOs)						0.00									
Do Aine	Chlo- ride (Cl)	NEAR HAMILTON CIPY			0.42	19 0.54	18 0.51	17			·	0.76		0.79		
	Sul - fote (SO <sub>4</sub> )	HAM			,		15.0									
constituents	Bicor – bonote (HCO <sub>3</sub> )	K NEAR			120	142	152	2.54				182		2.23		
Minerol con	Carbon- ote (CO <sub>3</sub> )	NY CREEK			00.00	00.00	00.00	0.00				0000		0.00		
N N	Potas- eium (K)	STONY			1.0	0.02	0.02	0.02								
	Sodium (No)				12 0.52	14.0.61	14 0.61	14				17.0		18	 	
	Mogne- sium (Mg)				10	1,10	12 0.96	12 0.96								
	Colcium (Co)				1.40	33	34	1.70							 	
	표 🛶			_	7.9	7.7	8.1	8.1				8.1		7.9		
	conductance (micrombos at 25°C)				260	313	313	310				396		330		
					102	92	901	±01				46		96		
	Dissolved oxygen ppm %So				10.9	9.3	л·6	8.7				10.0		11.3		
					58	65	17	3				58		147		
	Dischorge Temp in cfs in 9F		dry	dry	488	21	32	18	dry	dry	dry	94	dry	1130		
	Dote ond time sompled	1957	Jan.	Feb.	3/12	4/9 1010	5/7	6/11	July	Aug.	Sept.	10/23	No w.	12/19		

a Iron (Fe), oluminum (A1), oreanic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{200}$  except as ehown. b Determined by addition of analyzed constituents.

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emples mades by Calif Dapp of Public Health, Division of Loboratories onsuiton (BCC), Matropoliton Woter District (MWD), Las Angales Dapp of Woter & Power (LADWP), City of Los Angales Dept of Pub-can illumi), as indicuted

was made by USGS, Quality of Water Branch (USGS), Paritia Chemical Notes to these leading Chemity at State Department of Water Resou

11   12   12   10   12   12   10   12   12																
13   13   12   10   10   10   10   10   10   10				USGS	USGS	USGS	USGS	USGS	SOSO	USGS	USGS	USGS	USGS	COSD	USGS	
State   Control of the control of		MPN/mi														
State   Column   Co		- pad -		9.0	-	-	0	7	15	6.0	9.0	7	7	9.0	&	
10   10   10   10   10   10   10   10		S C C C C C C C C C C C C C C C C C C C				0			0	0	0	0	0	0	0	
State   Control of the control of		Hard Os C Total		184	116	110	105	83	62	141	167	166	150	170	94	
State   Stat		Cant sad -		8	22	21	19	22	8	20	z	23	23	21	77	
State   Colored   Colore	1000	Bolids in ppm						135				253				
320   52   10.4   94   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   10.5   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6   12.6		Other constituents						0.03 A1	1 Coro			01 A1		Total Alk. 241		
320   52   10.4   94   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186		Silico														
320   52   10.4   94   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186   7.5   186	ilion in	Boron (B)		0.17	0.10	0.0	0.15		0.00	0.13	0.15	0.14	0.16	0.17	0.01	
10   10   10   10   10   10   10   10	oillin Per Per	Flua- ride (F)						0.0				0.0				
Security   Table   Districted   Circle   Districted   Circle   C	1 40	1 -	(ST					000				1				
11   12   10   10   10   10   10   10	por		TEHVILLE	12 0.34	7.5	7.3	6.0	4.5	2.3	7.5	9.8	13	10	12	6.8	
11   12   10   10   10   10   10   10	5	Sul - fate (SO <sub>4</sub> )	R PO					1.9				2.9				
11   12   10   10   10   10   10   10	stituents	1	TER NEA	261 4.28	170	2.38	2.44		% ₹	3.16	212		3.34	3.72	1,00	
Bo 60 9.7 7.7 22 1.6 6 8.9 95 32.6 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8 1.8			ULE RI	00.00	00.00		00.00	00.00	00.00	00.00	13		0000	0.23	8	
B2 56 10.9 10.3 276 8.1 38 5.1 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 1.75 0.45 0.45 1.75 0.45 0.45 0.45 1.75 0.45 0.45 0.45 0.45 0.45 0.45 0.45 0.4	ž	Potas- sium (x)	F-1	0.07	2.1		0.05	0.05	1.6			3.8		•		
Bo		Sodium (No)		0.96	15	14 0.61	12 0.52	11 0.48	7.2	16	0.87	1.00	21 0.91	21 0.91	0.48	
Boundary of the point of the control		Magne- sium (Mg)		9.6	5.1	5.5	0.35	2.6	1.6			8.3				
Discourage Temp Dissalved Conductores p.H. and p. p.m. 26.501 of 1.250.03 or 1		Ca)		58 2.89	1.8		35	1.45	1.10			53 #9				
Discongrege Temp Dissolved anygen of ppm %Solved onygen on Solved onygen on Solved onygen on Solved onygen on Solved		E G		7.9	8.	8	8.3	7-7	7.7	8.1	8.1	8	7.9	8.	7.7	
Discongrege Temp Dissolved anygen of ppm %Solved onygen on Solved onygen on Solved onygen on Solved onygen on Solved		Specific conductance (micrambos of 25°C)		h26	276	258	250	207		374	373	004	362	1403	186	
Discongraph of the property of				100		102	33	96	100		107	113	95			
119 56 119 56 117 73 320 55 320 55		Dissal		12°h	10.9	10.6	9.7	10.1	9.6	8.3	9.1	6.6	8.9	10.3	10.4	
9.7		Te and of		£ 2			8	95	<del>119</del>	73	92	73	99			
9.7		Discharge in cfs		Ħ	82	%	&	119	191	17	쿥	4.€	rz.	39	320	
Note that the second of the se			7561	1/9	2/19	3/19	11,49	5/14	6/11	7/9 07/10	8/6 1150	9/25	10/15	11/20	12/17	

a Iran (Fe), aluminum (A1), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chromium (Cr), reported here os  $\frac{90}{6000}$  except as shown.

b Determined by addition of analyzed constituents.

c Gravime Mic determination.

d Annual median and range, respectively. Calculated from analyses of duplicate marthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e Mineral analyses mode by USSS, Dublity of Water Bronch (USSS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angales Dept. of Water & Payer (LADWP), City of Los Angeles Dept. of Pub. Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field ph except when noted with e

ANALYSES OF SURFACE WATER B-14 TABLE

	Analyzed by 6			nses	uses	USGS	uses	nsgs	usgs	USGS	USGS	usgs	USGS	uses	USGS	
	v	-		ns	ns	US	n	ns -	ns	nsn	nsn	ns				
	Caliform MPN/ml					.=							Median 23	Max. 620	Min. 0.045	
	Production of the second of th					ю.		σ_	н	0.8	7	7	∞	2	0	
		E DDW		0		~	٦	0	0	<u>~</u>	0	0	0	m	0	_
		Edd		12	114	21	23	12	11	=======================================	9	9	11	77	10	
-	Per-			17	50	177	16	2 27	21	19	37	5 29	25	18	26	
Toto	salved salids in ppm							142				15				
	Other constituents							0.00 0.02 Zn				Po <sub>tt</sub> 0.00 cu cu				
	Silica (SiO <sub>2</sub> )						X01	22				5-1				
Ilion	Baran (B)		318	00.00	0000	0.08	90.0	0000	0.00	0	0000	0000	0.17	0	0	
ports per millian valents per million	Fluo- ride (F)		STA					0.2				0.00				
rts per lents	Ni- trate (NO.)		DAM					0.00				0.00 0.00				
ports p	Chia-	3	DON PEDRO	0.03	0.0	1.0	0.5	0.0	0.0	1.0	1.2	0.00	1.2	1.2	1.8	
Ē	Sul - fate (SO.)		BELOW				<u>l</u>	2.3				0.00				
constituents	Bicar – bonate (HCO.)	-	RIVER BE	16	16	36	0.44	0.30	16	0.10	9	0.20	16	13	14	
	Corban - B			0000	0 00 0	0.00 0.36	0 00 0	0 00 0	0 00 0	0 00 0	0 00 0	0 00 0	0000	0 00 0	0000	
Mineral	Potas- Ca	- 1	TUOLUMNE	0.01	0.01	0.02	0.02	0.02	0.5			0.02	10			
	Sadium (Na)			1.2	1.5	1.6	2.0	2.3	1.4	1.2	1.6	1.3	1.5	1.3	1.5	
	Mogne- Sc sium (I			1	<del>- 10</del> -			<del>-  </del>	- 10	10	0		10	10	0	$\dashv$
	Colcium s (Ca)	-		3.4 0.9	3.6 1.1	4.4 2.4 0.22 0.20	4.8 2.7 0.24 0.22	4.4 0.4 0.22 0.03	3.8 0.4 0.19 0.03			0.8 1.1		-		
-				6.9	6.7	7.0 4	70	6.9	60	8.9	7.3	6.7	6.7	6.7	6.7	-
- 5	ahos pH	-		9			7		9				<u>.</u>			
0	conductance (micramhas at 25°C)			31.	37.1	145.0	55.9	38.9	31.2	22.8	19.0	23.4	33	26.8	28.8	
	olved rgen			92	96	104	83	79	105	105	92	70	78	79	81	
		2		10.7	11.7	12.2	9.5	9.5	10.8	10.3	0.6	6.8	7.5	8.1	9.0	
	e Temp in of	_		84	3	т2	64	145	58	62	62	63	119	58	52	
	Discharge Temp			1224	920	3160	2530	2170	3160	3160	2260	1460	980	1250	1040	
	Date and time sampled		1952	1/10	2/20 1400	3/21	11/11	5/16 0850	6/12 1135	7/11	8/8	9/26	10/17	11/21 1345	12/18	

o Iran (Fe), aluminum (AI), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zh), and chramium (Gr), reported here as 00 except as shown.

b Defermined by addition of analyzed constituents.

c Gravimetric determination,

d Annuol median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Bronch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a TABLE B-14

ong West areas Dark of Published assisting the Copyrish of State One of Copyrish of Copyrish (PCC), Marion Chim The Copyrish and American Copyrish of State One of Copyrish of Copyrish Copyrish of Copyrish of Copyrish of Co

ds Funto Featrs, Juvetor or Lobaratories. Water District (MWD), Los Angeles Dept of Water Brower (LADWP), Gity of Los Angeles Dept of Pub Health (L.

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION

	Analyzed by e		nses	USGS	nses	uses	US GS	USGS	usas	usgs	USGS	SOSO	USGS	USGS	
	Coliform d MPN/ml											Median 23	Max. 7,000	Min. 0.62	
	Pid L			0.8	∞	7	2	2	2	2	9	9	~	d	
	Hordness as CaCO <sub>3</sub> Total N C			17	<u> </u>	28	15	18	34	25	56	~	<i>=</i>	0	1
			24	62	23	108	46	70	118	108	נונ	27	23	17	
	Sad -		35	611	20	44	94	94	64	52	50	38	27	36	
Loto	Solved solids in ppm						248				311				
	Other constituents					;	Al 0.11 Pb 0.01 PO <sub>tt</sub> 0.10 e. Fe 0.03 Zn 0.04				PO <sub>1, 0.15</sub> .				
	Silico (SiO <sub>2</sub> )	30					国				53				
Lion	Boran (B)	STA	00.00	0.04	0.08	0.12	0.04	0.00	0.14	0.02	0.05 53	0.15	0.07	000	
million per million	Flua- ride (F)	BRIDGE					0.03				0.0				
15	_	1 1					0.0				0.01				
parts p	Chla- ride (CI)	- WATERFORD	10	1.58	3.7	944	2.03 0	1.58	103	103	106 (2.99	14 0.39	5.8	7.2	-   1
Ē	Sul - fote (SO <sub>4</sub> )	HICKMAN					3.8				1.9				
constituents	Bicor- bonate (HCO <sub>3</sub> )	AT HICH	28	55	0.41	1.59	1000	1.05	102	101	1004	29	23	21 0.34	-
1	Carban - B	RIVER	0 00	000	0000	0.00	0.00	0 00 0	0000	0000	0.00	0000	0000	00000	
Mineral	Potos- (X)	TUOLUMNE	0.8	2.5	0.02	4°4	4.1	2.9			5-3			<u> </u>	1
	Sodium (No)	TOOL	5.9 0.8 0.26 0.02	1.26	0.12	146 4.4 2.00 0.11	1,780	1.22 0	53	53	2.39	7.7	4.0	ц. ц 0.19	
	Mogne- eium (Mg)		3.4	#.	2.6	9.8	9.1	9.9			0.87				
	Calcium (Ca)		3.8	16 5°4 0.80 0.44	5.0	1.35	1.20	0.85 0			27 1.35 0.				
	됩 😘		7.1	7.1	7.1	8-1	R.1	7.7	8.1	8.1	8.3	7.3	7.1	6.9	
	conductonce (micromhos of 25°C)		80.6 7.1	281	57.2	468	403	296	501	502	534	68	57.6	58°t	
			101	104	105	96	112	115	107	16	911	104	26	92	
	Diesalved oxygen ppm %50		11.8	11.0	12.1	9.7	10.1	0.01	0.6	†. °8	0.01	8.6	0.0	10.3	1
	Te or		100	56 1	641	54	70 4	73 1	77	74	74	99	58	51	
	Discharge Temp		803	153	2350	133	170	133	114	114	114	87h	1470	1320	
	Date and time sampled	1957	1/10	2/20 1745	3/21	4/11 1140	5/16	6/12 1405	7/11	8/8 1115	9/26	10/17	11/21	12/19	

a Iran (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 20 except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analysee of duplicate monthly camples made by Calif. Dept of Public Health, Division of Laboratories.

• Minaral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-14

CERTRAL VALLEY REGION

		Analyzed by e		USGS	USGS	USGS	USGS	USGS	USGS	USGS	nsgs	US GS	usgs	USGS	USGS	
		MPN/mi											Median 560	Max. 7,000	Min. 6.2	
		pid- hppd n		0.9	8	7	~	2	σ.	m	ω	2	9	2	н	
		Hordness as CoCO <sub>3</sub> Total N C		21	38	∞	ή9	09	37	61	9	<del>1</del>	12	13	7.	
		Hardras Co Total		94	112	32	176	170	92	181	180	159	96	∄	52	
	ā	sod -		84	50	38	641	53	₫	53	54	51	6 <del>१</del>	51	147	
	Total	ors- salved solids in ppm						443				413				i
		Other canstituents					A1 0.14 Gu 0.01	Po <sub>1</sub> 0.80 Fe 0.02				Po <sub>1</sub> 0.50 cu 0.01				
		Silico (SiO <sub>2</sub> )						22				#			-1	_
	million	Beren (B)	17	0000	90.0	0.0	0.12	010	000	0.12	0.10	0.05	0.12	0.03	0.00	
	per m	Flue- ride (F)	(STA.	•		·		0.4			'	0.0				İ
	۵							3.6				0.00 0.01				
CENTRAL VALLEY REGION	ports p	Chla- ride (CI)	TUDEUMNE CITY	70	3.05	20	166 4.68	170 04.79 0	2.09	178	183	153	1.52	38	1.24	
LLEY	Ē	Sul - fote (SO <sub>4</sub> )	T. T.	<u> </u>	<u> </u>	<u> </u>		8.6	1			6.7			•	
RAL VA	constituents	Bicor - S banate (MCO <sub>3</sub> )	RIVER AT	1.10	1.48	29	137	2.20	67	146	146	2.31	5. 68. 0.89	38	46	
CERT		Carban - B		0000	0000	0000	0000	0000	0 00 0	0000	0000	0000	0000	0000	0000	
	Mineral	Potas- Co sium (K)	TUCLUMNE	2.4	3.5	1.2	6.8	6.4 0.16	3.0			6.4				
		Sadium (No)		34	2,31	9.41	3.61	3.96	35	95	96	3.52	25	21	0.91	
		Magne- S sium (Mg)		3.3	9.0	3.2	1.17	1 2 3	7.7	ᄑ		1,08		10	10_	
		Caterum (Ca)		1.25	30	7.6	47	47	24 1.20			μ <sub>2</sub> 2.10		<u></u> `		
		<u>₹</u> ••		7-1	7.1	7.1	7.5	7.7	7-1	8.3	7.7	7-1	6.9	7.1	7.0	
		conductonce (micrombos at 25°C)		342	204	114	787	788	369	819	htt8	753	263	184	226	
		Dissolved asygen ppm %Sat		92	26	102	70	8.7 101	49	149	91	95	69	<del>1</del> 8	82	
		. 1_1		10.2	7.9	11.1	7.5	8.7	6.1	11.9	7.7	5.1	6.3	8.9	0.6	
		Temp in OF		52	52	53	25	η <sub>4</sub> 0ηη	99	5 82	940	69 0	99   -	95 0	23	
		Discharge in ofs		905	550	1830	06η	711	885	325	320	360	1205	1530	1395	
		Date and time sampled	1957	1/10	2/21	3/21 1340	1345	5/16	6/13	7/11	8/8 1245	9/27	10/17 1410	11/22	12/19	

a Iran (Fe), aluminum (AI), areenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reparted here as 200 except as shawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annul median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Divisian of Labarates.

Mineral analyses made by USGS, Quolity of Water Branch (USGS), Pacific Chemical Caneultant (PCC), Metrapalitan Water District (MWD), Las Angelee Dept. of Water & Pawer (LADWP), City of Las Angelee Dept. of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated f Fleid pH except when noted with a

SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-14

Long Backs and see by 1955, Sucily of Water Growth (1953), Positio Chemical Committee (1954), Marcopolism Water District (MWD), Los Angeles (1954), City of 10s Angeles Dept of Pub.

CENTRAL VALLEY REGION

	Analyzed by a			USGS	usos	uses	usgs	nses	usgs	USGS	usgs	USGS	S	nsgs	uses
				ns	US	nsn	ns.	nso	US	Sn.	NSO.	ns	an USGS		
_	bid - Caliform												Median 6.2	Max. 620	Min. 0.23
	bid n pp	ΩE		15		20	~	~	20	80		9.0	- 2	#	0 0
		Tatai N.C ppm ppm		52 3	50 2	28 4	32 0	30 0	7 7 T	39 5	53 6	† 95	59 3	55 4	146 3
-															
-	ed god -	E		1	14	11	12	49 It	12	11	12	90 13	12	12	13
Tat	solved solids	مة													
	tuents							0.00				4			
	Other constituents						8	010 A1				201			
	Ozher						9	Lt Fe 0.01 A				PO <sub>14</sub> 0.05			
	Silica	2010			-			7				12			
lion	Boron	(0)		0.00	0.00	0.02	0.00	8	90.00	0.11	00.00	8	0.03	8	0.00
million per million	Flua-		(12)					0.01				0.01			
10	rate t	_	(STA o				-	0.00				0.00			
ports p			377	v√ <del>2</del>	278	0.5	0.3	- 10	2.2	0.8	1.0		ry z	2/2	2.5
"	Chia-	Ü	MARYSVILLE	0.0	22.3	0.0	0.01	0.03	0.06	0.02	0.03	1.5	0.04	0.07	0.07
ē	Sul -	(80,	AT MAR					2.9				11			
constituents	Bicar -	HCO <sub>3</sub> )	RIVER A	96.0	58	0.48	141	37	25	41	57	1.05	1.11	1.02	52
1		(co <sub>3</sub> )	YUBA RI	00.00	00.00	0000	00.00	000	0.00	000	000	00.00	00.00	00.0	00.00
Mineral	Potas- C		7-1	0.01	0.5	0.02	0.01	0.01	0.03			1.3			'
	Sadium		-	3.1	3.6	1.5	0.00	2.4	1.7	2.4 0.10	3.2	3.8	3.8	3.5	3.3
				0.34 0.	4.3 0.35 0.35	3.6	2.6	1.9 0.16	0.11 0.	10	10	5.1	``lo	()0	10
	Magne-	ž				_									
	Calcium	(C		14 0.70	13	5.2	8.8	8.7	7.4			14 0.70			
	I	4		7.3	7.5	7-1	7.3	7.3	7.3	7.3	7.4	7.5	7.5	7-3	7.3
2000	(micrambos at 25°C)			118	111	55.8	71.4	71.9	52.8	82	112	126	130	121	103
		%Sat		46	106	102	101	100	100	97	<del>1</del> 8	88	8	95	98
	Dissolved	wdd		13.0	12.4	11.7	10.9	9.8	9.6	ω ω	7.4	8	5.6	10.0	11.3
	Temp in aF			38	44	641	5th	62	ή9	69	72	69	62	56	6tı
	Discharge Temp		Mean Daily	059	782	0259	2510	3450	3470	310	258	261	420	084	2100
	Date and time sampisa		1957	1/10	2/13 1240	3/12 0915	1105	5/6 1245	6/10	7/8 0945	8/12 1030	9/16 1045	10/22	11/12	12/20

o from (Fe), aluminum (A1), oreanic (Ae), capper (Cu), lead (Pb), monganese (Mn), zinc (Zn), and chromium (Cr), reported here os  $\frac{0.0}{0.05}$  except as snown. b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Colif. Dept. of Public Health, Division of Laboratories.

e Mineral analyses mode by USCS, quality of Water Branch (USCS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water B Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Fleld pH except when noted with a

ANALYSES OF SUBLACE WATER

ANALYSES OF SURFACE WATER CENTRAL VALLEY REGION TABLE B-I

1		-														
		Anolyzed by e		USGS	USGS	nsgs	USGS	USGS	USGS	usas	nsos	nses	nses	USGS	uses	
		Coliform MPN/ml											Median 2.3	Max. 130	Min. 0.045	
	į	m da u		1	9	20	#	#	3	6.0	9.0	-	ਕ	#	20	
Ì	•	N CO3		0	0	#	H	0	2	~	6	0	0	2	∄	
		Hardness as CaCO <sub>3</sub> Tatal N.C.		20	34	. 27	34	28	22	31	57	11	52	64	47	
	Q	ent - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man - man -		11	13	10	12	12	15	ή[	11	7.	13	13	15	
	Total	Drs- solved solids in pom						47				82				
		Other constituents					CC	70 0.03 A1 0.04 Zn 0.08				P0 <sub>tt</sub> 0.00 Zn 0.01				
		Silico (SiO <sub>2</sub> )						ជ				ध				
	Hion	Baran (B)	(12)	0000	00.00	0.02	0.00	0000	0.11	0.09	0000	0.00 0.00 0.00	0.00	0.00	0.17	
	ports per million volents per million	Fluo- ride (F)			'			0.00 0.01				0.00		•		
	ē	N- trote (NO <sub>S</sub> )	3					98				200				
	ports p	N TON	HILE						٠.					, al -	10 2	
	edn	Chio- ride (Ci)	SMARTVILLE (STA.	0.03	2.8	0.0	0.01	0.04	0.03	0.02	0.04	2.6	0.06	0.04	0.07	
	<u>=</u>	Sul - fote (SO <sub>4</sub> )	NEAR					2.3				0.10				
	constituents	Bicor- bonote (HCO <sub>3</sub> )	RIVER	62	57	28	0,66	35	25	34	59	1.07	1.05	54	52	
		Corbon-	YUBA	00.00	00.00	00.00	00.00	0000	0.00	00.00	00.00	0.00	00.00	00.00	00.00	
	Minerol	otos- Co sum (K)		0.00	0.5	0.7	0.01	0.01	0.01	10		1.1				
		۵			0	10		6,80	6.80	212	3.2	1718				
		Sodium (No)		3.1	0.14	1.4	10	1.9	0.08	2.2	00	3.8			- No.	
		Magne- sium (Mg)		3.6	3.4	3.4	2.8	0.14	0.0			3.3	0.15	3.6	0.16	
		Colcum (Co)		14	13	5.2	8.8	8.7	7.7			0.75				
		Ha a		7.3	7.3	7.1	7.3	7.3	7.3	7-3	7.5	7.7	7.5	7.3	7.3	
	operation	canductance (micramhas at 25°C)		115	107	54.7	69.3 7	67.5 7	149.3	67.1	108	122	121	100	103	
	· ·	- 6		66	106	1,03	104	- 86	100	66	-66	104	66	86	86	
		Dissolved oxygen ppm %Sat						10.0	9.6	7.6	# 80	8.7	6	10.6	:: ::	
		1 - 1		13.1	12.8	3 12.0	11.									
		e Temp in af		39	2 145	2 148	2 55	2 58	79 6	3 65	9/ 9	3 77	1 60	1 54	1 F	
		Discharge in cfs		615	706	5502	2462	4262	1319	793	947	503	1941	511	2015	
		Date and time sampled	1957	1/10 1245	2/13 1400	3/12 1025	4/8 1225	5/6	6/10 1245	7/8	8/12	9/16	10/22	11/12	12/20	

a iron (Fe), aluminum (A1), arsenic (Ae), capper (Cul, lead (Pb), manganese (Mn), zinc (Zn), and chromlum (Gr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

• Minaral analyses made by USCS, Quality of Water Branch (USCS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Pawer (LADWP), City of Las Angeles Dept of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER TABLE B-15

de by cour Dapt or Fuglia Health, Division of Laboratories. Che Metropilian Work: District (MWD), Lie Angeles Dept of Water & Fawer (LADWP), City of Los Angeles Dept of Pub Health (LADPH).

LAHONTAN REGION

	Anolyzed by 6					uses	USGS	USGS	USGS	USGS	US <b>G</b> S	uses	nsgs		
	bid - Coliform											0.6 Median 0.42	Max. 500	Min. 0.045	
	- Ald -					M	1.0	7	-	H	9.0	0.6	0.0		
	Hardness os CoCOs Totol N C ppm					0	0	0	0	0	С	0	0		
	1					30	31	21	39	38	32	040	39		
	P S C C C C C C C C C C C C C C C C C C					26	27	28	36	28	30	23	26		
Total	Solved solids in ppm						58				89				
	Other constituents						Fe 0.01; A10.02; Cu 0.02; Zn0.04; POu 0.02				PO <sub>11</sub> 0.00				
	Silico (SiO <sub>2</sub> )						듸				92		1		
non	Boron (B)					0.05	0.05	0 0	0.01	0.00	٥٠٠٥	0.00	0.0		
million per mill	Fluo- ride (F)	3					0.01				0.0				
è   -		TA. 39)					0.00				0.00				
l in	Chlo- ride (CI)	BIJON (STA.				0.04	2.2	0.01	3.0	2.2	2.8	1.7	2.2		
ē	Sul - fote (SD4)	OE AT					0.00	_			1.5				
constituents in	Bicor- bonate (HCO <sub>3</sub> )	E TAHOE				146	52 0.85 0	36	51	50	0.84	2.0	52		
000	Carbon - B	LYKE				0.00	00.00	0000	0000	0000	000	000	000		
Mineral	Potos- Co Srum (K)					0.01 0.04 0.04	1.5	1.2			2.1	1			
	Sodium S (N 0)					5.2	5.8	4.1 0.18	6.4	6.6	6-7	5.5	6.5		
	ne- So										0.14	<u> </u>			
	Mogne- sium (Mg)					2.4 0 0.20	5 0.16	6 0.6			্ৰ _				
	Calcium (Ca)					8.0 0.40	9.2	7.6			0.50				
	<b>H</b>					7.3	7.4	7.3	7.7	7.9	7.9	7.9	7.3		
	conductance (micromhas at 25°C)					61.8	88.0	67.7	91.6	92.4	26	する	93.3		
						8	8	77	78	77	16	78	75		
	Dissolved oxygen ppm 0/oSot		τı	P	ਰ	7.6	9.1	8.3	7.5	7.4	7.8	9.8	9.3	Ð	
			Sndwbound	Snowbound	Snowbound	145	51	54	ή9	ή9	5€	52	43	Snewbound	
	Dischorge Temp in cfs in PF		Snow	Snow	Snow									Sner	
	Date and time sampled	1957	Jan	Fi Q	# 82 12	μ/12 0810	5/9 1550	6/14 0630	7/12	8/16	9/ <b>2</b> 0 0815	10/25	11/15	Deo	

o Iron (Fe), oluminum (Al), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zh), and chromium (Cr), reported here as OS except as ehown.

b Determined by addition of analyzed constituents.

c Grovimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-15 LAHONTAN REGION

	Anolyzed by e						USGS	USGS	uses	nses	USGS	nses	uses	nsgs			7
	bid - Coliform d										· · · ·	_	Median 0.23	Max. 2.3	Min. 0.045		
	bid -						٦	9.0	4.5	9*0	٦	Н	9.0	0.7			
	CD	2 E					0	0	0	7	0	0	0	0			
		ppm					34	31	34	43	32	33	35	33			
-	Cont Cont Cont Cont						27	28	27	25	30	29	26	27			4
Total	solved solids	٥٤	_					62				99					
	Other constituents							PO40.05 Zn0.02				PO4 0 00A1 0.02					
	Silica						<b>∞</b> 1 · · ·	E		a. –	<u> </u>	14					
e li	Boron (B)						0.0	0 0	0.0	0.01	0	0.0	0.03	0.0			
million per million	Fluo-	(F)	8					0.00				0.00					
6	i .	NO.5.)	STA					0.00				0.01					
parts p	Chia-	$\dashv$	TAHOE CITY				1.5	1.8	2.0	2.8	4.0 0.11	3.2	1.6	2.5			
Ē	Sul -	SO4)	AT 'LA					2.3				0.00					
vents	Bicor-		TAHOE A				51	52	50	50	52 85	26.0	27	52			-
constituents		- 1					0		0	0	0		51 00 0.84				-
Minarol	Carban- ate	00)	LAKE				00.00	00.00	00.00	00.00	0.00	00.00	00.00	00.00			
ž	Pates-	(¥					1.6	1.6	1.7			2.0					
	Sadium						5.9	6.0	5.9	6.4	6.5	6.6	5.5	6.5			
	Magne- S	(0)				•	2.7	2.1	2.2	!		2.6					
	E S	<u>-</u>												<u>.</u>			-
	Cotoum	1					6 9.2	5 9.3	5 10	<u></u>	6	9 9.1	2	72			4
	୍ଟ <mark>ଜୁନ</mark>	44					8 7.6	0 7.5	7.5	1 7.8	5 7.9	7.9	7.5	2 7.5		<del></del>	$\dashv$
	conductonce (micromhas						86.8	0.46	91.4	92.1	94.5	96	96	95.2			
		%Sot					80	18	8	<b>1</b> 2	48	83	81	79			
	Dissaived	E dd		75	77	77	8.6	4.6	9.6	8	7.9	0.8	8.7	4.6	T.		
				Snowbound	Snowbound	Snowbound	77	51	52	65	59	63	54	94	Snowbound		
	Discharge Temp			Sno	Snok	Snov									Snow		
	Date and time		1957	Jen	Feb	Mar	4/12 1040	5/9 1415	6/13	7/11 1425	8/15 1430	. 9/19	10/25	11/15	Deo		

a iron (Fe), aluminum (AI), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{600}$  except as ehawn. B Determined by addition of analyzed constituents. c Gravimetric determination.

f Field pH except when noted with e-

d Annual median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Divisian of Labardes.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapatitan Water District (MWD), Las Angeles Dept. of Water & Pawer (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

ANALYSES OF SURFACE WATER TABLE B-15 LAHONTAN REGION

	Anolyzed by e					USGS	USGS	USGS	USGS	USGS	USGS	USGS	ÙSGS		
	s bid - Caliform d				···········							0.6 Medlan 0.06	Max. 2.3	Min. 0.045	
	ord - C					-	9.0	7.5	7	2	70	9.0	0.3		
	N COS					0	0	0	0	0	0	0	0		
	Hordness os CoCOs Totol N C					34	32	35	39	32	32	36	[ <del>†</del> ]		
	sod –	-				27	28	25	26	30	30	25	25		
Totol	Solved solids in ppm						62				69				
	Other constituents						Pbo.01; Zno.02 Pot, 0.00 a				A10.01; Pb0.01 PO40.00				
	Silico (SiD <sub>2</sub> )						13				18				
11.00	Boron (B)					00 0	00.0	0.03	0.01	00° U	0.00	0.02	0.02		
million per million	Fluo- ride (F)	33					0.00	•			0.00				
انة ا	Ni- trote (NO <sub>3</sub> )	STA					0.0 0.00				0.1				
equivolents	Chlo- ride (CI)	TAHOE VISTA (STA				2.0	1.6	2.0	2.2	3.0	3.0	3.0	3.0		
Ē	Sul - fate (SO <sub>4</sub> )	AT TA					1.9	•	·		2.9				
constituents	Bicor- banote (HCO <sub>3</sub> )	TAHOE				0.62	52	54	53	53	50	52 0.85	0.90		
	Corbon B	LAKE TA				0.00	0.00	0000	0.00	0000	0000	0000	0000		
Mineral	Potos- Co					1.6	1.7	1.5			2.1				1
	Sodium (No)	-				5.9	6.0	5.7	6.4	6.5	6.6	5.5	6.5		
	Mogne- Sc sum (Mg)					2.9	0.16	0.15		10	2.1				
	M <sub>e</sub> (o					8 8 0	9.7	0.55			74.0				1
-	Colcium (Co)					7.5	7.0	<u> </u>	7.7	7.9	0	4			-
-	Pice PH														1
Specif	conductonce (micromhos					91.5	9.60	91.2	93.0	95.6	92.1	95.0	104		
						80	98	83	83	83	78	80	78		
	Dissolved oxygen ppm %So		p	P	p	10.0	9.3	ω	7.9	7	7.7	8	6	nd	
			Snowbound	Snowbound	Snowbound	£3	50	95	69	49	62	514	147	Snowbound	
	Dischorge Temp in cfs in <sup>GF</sup>		Sno	Snok	Sno									Sno	
	Date and time sompled	1957	Jan	EH Q	Mar	1000	5/9	6/13	7/11	8/15	9/20	10/25	11/15	Dec	

a iron (Fe), aluminum (A1), aremic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{QOD}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division at Laboratories.

6 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated \* Field pH except when noted with e-

ANALYSES OF SURFACE WATER TABLE B-15

LAHONTAN REGION

		Anolyzed by a		DWR	DWR	DWR	DWR	DIVR	E A	
	•	Coliform d MPN/ml					Median 18	Мах. 240	2.3	
	1	- piq uppu		-5	-5	1,5	2	-5	5	
		CO3 N C				0				
		Hardness os CaCO <sub>3</sub> Total N C ppm pom		69	£.	111	110	72	<i>E</i> .	
	0	sod –			148	20	58	ス	E 1	
	Total	Solved solids in ppm		174		279				
		Other constituents				PO <sub>11</sub> 0.12 a				
		Silico (SiO <sub>2</sub> )	670)	25		2				
	lian	Boron (B)	Sta	0.12	0.13	0.14	0.18	भू	90.	hawn.
	million per million	Fiuo- ride (F)		1.2		3.0				of ds 6
	انة		KS.	0.01		1.0				SO exces
N.	parts p equivalents	Chlo- ride (Cl)	THE FORKS	0.20	0.28	15	18	12	12 0.34	d here os
REGIO	<u>=</u>	Sul - fote (SO <sub>4</sub> )	ER AL	25		1.43				report
LAHONTAN REGION	constituents	Bicor- Bonate (HCO <sub>3</sub> )	MOJAVE RIVER	121	2.38	159	127	112	103	um (Cr.),
LAH		Carbon-E	MOJ	0000	0000	0000	0000	0000	0000	nd chrom
	Mineral	Potos- C sum (K)		2.2		3.2				(Zn), or
		Sodium (No)		29		52 2 2 2 6				חוב (ח
		Mogne- Srum (Mg)		6.1		8	·			M) Bseu
		Calcium (Co)		2000		E/12				b), mange
		돌 🛀		7.0	7.4	8	8.0	8.2	5.2	d) poe
	Specific	conductance (micromhas at 25°C)		259	317	48th	548	267	250	per (Cu), In
		Dissolved oxygen ppm %Sot		69	69	49	89	89	82	dos (e)
				0•9	0.9	0.9	8	9.01	0.00	7) Diube
		Te m		73	16	2	69	911	<del>=</del>	), or
		Discharge Temp in cfs in aF		15 est	1 est	0.5	est 2	est 15	est 10	luminum (A
		Date and time sampled	1957	7/2	8/7 1230	9/4	10/9	11/5	12/4 1200	o Iran (Fe), aluminum (A1), areenc (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 00 except as shawn.

o Iran (Fe), oluminum (AI), areanc (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 000 except as b Determined by addition at analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Labardoles.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADMP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

TABLE B-15

ANALYSES OF SURFACE WATER LAHONTAN REGION TABLE B-15

	Analyzed by e		D./R	DWR	DWR	DWR	DWR	DWR	DWR	DIST	DIVR	DWR	DWR	DWR
	bid - Colitorm dispanding MPN/ml											Median 23	Max. 2400	M11.
	Type u		-5	5	-5	7	5	100	35	-5	5	1	4	85
	N COS										#			
	1 1		1,18	150	156	159	157	155	152	153	159	142	130	145
d	sod -		35	3,	36	33	36	36	37	37	33	39	3	36
Total	Solved solids in pom						8				311			
	Other constituents						d				Po <sub>11</sub> 0.2 a			
	(S.O.2)	67					15				25			
illion	Boron (B)	(Ste	40.0	40°C	11.0	11.c	0.15	0.17	01.0	0.08	0.02	0.00	0.08	0.06
millian per million	Fluo- ride (F)						0.0				100			
15.1		LLE					0.00				0.02			
parts pe	Chla- ride (CI)	VICTORVILLE	31	32	30	35	33	0.90	33	34	35	340.096	0 20 20 20 20 20 20 20 20 20 20 20 20 20	0.90
č	Sul - fate (SO <sub>4</sub> )	NEAR					52				1.00			
constituents	Bicar- banate (HCD <sub>3</sub> )	RIVER	172	182 2.98	179	3.03	3.02	172	3.05	179	3.10	162	167	174 2.85
Minaral con	Carban- ate (CO <sub>3</sub> )	YOJAVE	0000	0000	0000	00.00	0000	000	0000	0000	0000	000	0000	0000
M	Potas- sium (K)						2.2				2.3			
	Sadium (Na)						1,78				1.87			
	Magne- sium (Mg)						15				0.82			
	Calcium (Ca)						38				47			
-	Ha La		7.8	7.8	7.8	7.7	7.7	7.9	8.0	8.1	7.9	8.1	7.9	7.7
4,000	conductance (m.crambas at 25°C)		181	181	2 9911	192	1483	1482	164	192	184 184	1473	387	lη 2
			77	85	73	79	79	77	94	833	92	80	92	79
	Dissalved axygen ppm %Sa		#•8	9.0	7.0	7.0	7.4	0.9	7.0	6.7	7.6	7.2	54 10.0	0.6
			514	55	ή9	72	99	81	68	80	19	70	54	20
	Discharge Temp in cfs in 9F		52	33	ľη	56	25	19	•17	15	15	20	36	20
	Date and time sampled	1957	1/9	2/8	3/5 12 <sup>4</sup> 5	4/9	5/9	6/11 1 <sup>4</sup> 30	7/2 2045	8/7 1045	9/4	10/9	11/5	12/4

o Iron (Fs), oluminum (Al), orssnic (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown.

b Defermined by addition of analyzed constituents.

c Gravimstric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

A Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropoliton Water District (MWD), Las Angelee Dept. of Water & Power. (LADWP), City of Lae Angeles Dept. of Pub Health (LADPH), Las Angelee Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated.

ANALYSES OF SURFACE WATER LAHONTAN REGION TABLE B-15

	Analyzed by e					USGS	USGS	USGS	USGS	USGS	USGS	USGS	USGS			
	MPN/ml										Median 42	Max. 7000	Min. 0.13	,		
	D- bid pid n	-				~	2	1.0	2	-	-	0.0	19			
	N C DPM					0	0	0	0	0	0	С	0			
	Hardr as Co Total ppm					77	37	947	26	73	3	69	53			
0	sod -					14	16	15	15	7	15	†.	17			
Total	Dis- salved solids in ppm b						67				140					
	Other canstituents						Fe0.06; A10.08 Cu0.03; ZnJ.01				0.00 41 PO40.10 Feb.06					
	Silica (SiD <sub>2</sub> )						23				41					
lian I	Boran (B)					0.00	0.10	0.00	0.17	0		0.0	0.00			
million per million	Fluo- ride (F)	17b)					0.00				0.00					
ě	Ni- trate (NO <sub>3</sub> )	(STA.					0.0				0.00				-	
parts p	Chia- ride (Ct)	AT SUSANVILLE (				0.01	0.01	0.01	0.5	0.02	0.02	1.2	0.0			The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
ē	Sul - fate (SO <sub>4</sub> )	SUS					1.0		<b>-</b>	1	1.0					
constituents	Bicar S bonate (HCD <sub>3</sub> ) (					60	0.87	68	34	93	119	1000	72			
	Carban - B ate (CO <sub>3</sub> ) (t	SUSAN RIVER				00.00	0000	0000	0 0 0	00.00	0.00	0.00	00.00			
Mineral	Patas- Co sium (K) (	SOS				0.02	0.02	1.2		19	2.8					$\dashv$
	Sadium (Na)					3.4	3.3	0.17	2.0	5.5	7.2	5.3	5.1			$\dashv$
	Magne- Sar Sium (Mg)					0.34	3.4	3.8 4			8.6	0	o			$\dashv$
	mun Ma			_												
	Calcium (Ca)					5 11 0.55	7 9.2	7.9 12 0.60	-1	.7	7.8 19	7.5	7.5			_
	Hg 64					7.5	7-7	7	7.7	7.7	7.	7	7			$\dashv$
2000	conductance (micromhas					95.3	89.6	107	59.9	146	187	159	118			
						98	98	98	85	81	80	48	83			
	Dissalved oxygen ppm 9/6Sa					11.2	9.5	8.1	7.6	7.3	8.7	9.5	10.5			
	Temp in OF		ponne	ponno	ouno	140	52	65	70	70	53	50	742	Snowbound		
	Discharge Temp in cfs in 0F		Snowboun	Snowbo	Snowbound	114	100	44	145	10.9	5.3	15	73	Snow		
	Date and time sampled	1957	Jan	ri Geb	Mar	4/11 0915	5/8	6/12 1335	7/10 1350	8/14	9/19 0710	10/25	11/14 1310	Deo		

a iran (Fe), aluminum (AI), arsenic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as chawn. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annul median and range, respectively. Calculated from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Divisian at Labaretes. Bower (LADWP), City of Los Angeles Dept of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept of Water & Power (LADWP), City of Los Angeles Dept of Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated

TABLE BATER

ANALYSES OF SURFACE WATER LAHONTAN REGION

		Anolyzed by 6					usgs	USGS	usgs	uses	USGS	USGS	uses	usg.s		
		MPN/mi											Median 18	Max. 7000	Min.	
	- I	- Piq					C	2	0.4	H	0	2		2		
		Hardness os CoCO <sub>3</sub> Totol N C ppm ppm					C	С	0	0	-	c	0	0		
							27	24	21	31	32	32	36	34		
-	d	Sod -					19	21	19	22	21	29	24	27		
	Total	Solved solids in ppm						48				69				
		Other constituents						Fe 0.03; A10.07; Cu 0.01; Zn 0.02; Pou 0.00	-			Polt 0.05 Fe 0.02 Al 0.03 a.				
		(SiD2)						17	,	-1		13				
	Billion	Boran (B)					0.08	0.20.08	0.10	0.0	0.05	000000	0.07	0.0		
6	per	Fluo- ride (F)	53					0.2								
ports see strong	equivolents	trote (NO <sub>S</sub> )	(STA.					0.00				00.00				
,	ednik	Chio- ride (Ci)	TRUCKEE RIVER NEAR FARAD (STA.				0.5	0.03	0.03	0.0	0.03	3.2				
	Ē	Sul - fote (SD <sub>4</sub> )	R NEAF					0.0				2.9	2.0	3.4		
	constituents	Bicor - bonote (HCD <sub>3</sub> )	RIVE				39	35	30	144	38	49	52	54		
		Corbon—	RUCKEE				0 00 0	0 0 0	0.00	0 00 0	0 00 0	0000	0 000	0000		
	Mineral	Potos- Sum (X)	₽I				1.0	0.02	0.0	!	1-	2.0				
		Sodium (No)					3.1	3.0	2.4	4.2 0.18	4.0 0.17	6.4	5.2	5.8		
		Mogne- S					0.17	0.10	1.3	10	10	2.1	10	10		
		Calcium (Co)					7.4	7.6	6.3			74.0				
r		표 🛶					7.3	7.3	7.3	7.7	7.8	7-7	7-7	7.3		
	0.000	conductance (micrombos at 25°C)					70.3	63.1	5ħ•7	80.9	74.3	95.9	97.8	95.9		
							48	85	<del>1</del> 8	82	79	79	85	83		
		Dissolved oxygen ppm %So		pu	pu	pu	43 10.4	6.6	9.2	8	7.4	8	9.5	39 10.9 8	pu	
				Snowbound	Snowbound	Snowbound	143	48	53	59	99	59	51	39	Snowbound	
-		Dischorge Temp		Sno	Sno	Sno	1085	922	1055	630	573	620	59h	503	Sno	
		Dote ond time sompled	1957	Jan	ri eb	Magr	4/11 1345	5/9 1245	6/13	7/11	8/15	9/19	10/25 1420	11/15	Dec	

o Iron (Fe), aluminum (A1), arsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here as 100 except as shown.

b Determined by addition of analyzed constituents.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

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Long Beach Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-15 LAHONTAN REGION

	Analyzed by e				USGS	USGS	USGS	USGS	USGS	usgs	USGS	USGS			
	Coliform MPN/mi										Median 6,2	Max. 500	Min. 0.13		
ToT	- bid -ify n ppn				-	6.	80	9.0	0	•	α:	<b>⊢</b> `			
	Hardness as CaCO <sub>3</sub> Tatal N.C. ppm ppm				0	0	-	0	0	0	0	2			
1	i L				2%	214	27	35	T13	32	<u> </u>	t+3	<del></del>		
0	Sad -				13	20	20	27	3	<u>%</u>	23	214			
Total	salved solids in ppm					144				68					
	Other canstituents					Fe 0.02; A10.08 Cu 0.1; Zn 0.03 Pot 0.00 a				Fe 0.05					
	Silica (SiO <sub>2</sub> )					16				17					
iltion	Baran (B)	52)			0.04	0.01	0.05	0.10	0.02	00°C	00 0	0.02			
million per million	Fluo- ride (F)	STA, 52				0.0				0.01					
1511	Ni- trate (NO <sub>S</sub> )				*	0.00				0.1					
parts p	Chia- ride (CI)	NEAR TRUCKEE			0.5	0.02	0.8	1.0	2.5	3.0	2.0	2.8 0.08			
E .	Sul - fate (SO <sub>4</sub> )	RIVER N				1.9				2.5					
constituents	Bicar- banate (HCD <sub>5</sub> )				35	32	32	50	58	0.82	51	50			
1	Carban - B ate (CO <sub>S</sub> ) (1	TRUCKEE			00.00	0000	0000	0000	0000	0000	0000	00.00			
Mineral	Patas- Ca sium (K)				0.0	0.02	0.02	10	10	2.1	10	10			
	Sadium Po (Na)				3.1	2.7	3.3	6.0	9.6	6.7	5.7	6.1			
		-			0.17	1.1	2.1	96	0	1.7	0	90		_	
	Mogne- Sium (Mg)														
	Calcium (Ca)				0.39	7.6	0.37			9.8 0.49		_			
	I 64				7.3	7.1	7.3	7.7	8.2	7.7	7.5	73			
Specific	conductance (micramhas at 25°C)				69.8	61.6	61.2	91•1	106	0.96	97.0	95.5			
	<del>-</del>				118	48	82	16	90 106	4	81	81			
	Dissalved oxygen ppm %Sa	75	Ъ	g	10.0	10.1	6	7.2	© ©	7.4	8.7	10.2	70		
		Snowbound	Snowbound	Snowbound	3	<sup>1</sup> +2	51	9	69	63	5t	η-5	Snowbound		
	Discharge Temp	Sno	Snow	Snok	214	540	280	261	61	387	304	316	Suos		
	Date and time sampled	1957 Jan	e Q	Mar	11/11 1500	5/9	6/13 1245	7/11	8/15	9/19 1445	10/25	11/15	Dec		

o Iran (Fe), aluminum (AI), areenic (As), copper (Cu), lead (Pb), monganese (Mn), zinc (Zn), and chromlum (Cr), reported here as  $\frac{90}{200}$  except as ehown. b Determined by addition of analyzed canstituents.

c Gravimetric determination.

d Annual medion and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

E Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropalitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Lae Angeles Dept. at Pub Health (LBDPH) at State Department of Water Resources (DWR), as indicated f Fleid pH except when noted with a

SURFACE WATER

ANALYSES OF SURFACE WATER COLORADO HIVER BASIN REGION

(LADWr), City of Los Angeles Dept of Pub Health (LADPH),

	-													
	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	Coliform d MPN/ml											1,000 Median 230	250 Max. 2400	380 Min.
	L Pid		360	350	300	200	500	200	80	250	280	100	250	380
	N C O 3										549			
	Hordr Os Co Totof ppm		845	988	865	803	812	834	818	845	836 6	757	1018	952
	sod -		53	53	45	51	52	52	45	52	55	53	22	75
otat	Solved solids in pom						2165				2707			
	Other canstituents						2				PO <sub>L</sub> 0.16 & 2			
	Silico (SiO <sub>2</sub> )	(09					15				9			
co	Baran (B)	(Ste	0.46	0.50	0.46	0.40	0.48	0.45	0.51	99.0	0.53	71170	0.68	0. W6
ports per million valents per million	Fluo- ride (F)		<u> </u>		<u> </u>		0.02				9.00			
ě														
parts p	rrote (NO <sub>3</sub> )	KIA					13.1				16.0			
equiv	Chia- ride (CI)	NEAR CALIPATRIA	660	20.16	685	560	583 16.44	618 17.43	650	660	665	570 16.05	90 <del>5</del> 25.52	805
č	Sul - fote (SO <sub>4</sub> )	EAR					683				235 15,30	-		
-1			2/20	718	229	415		715	mlo	0/0		V0 160	97/2	9/10
constituents	n Bicar - bonate (HCO <sub>3</sub> )	YO RIVER	3.56	5 3.47	3.56	3.47	3.50	3.67	3.16	3.26	3.21	3.38	3.75	3.75
Mineral	Corbon- ote (CO <sub>3</sub> )	ALAMO	00.00	00.00	00.00	00.00	00.00	0000	00.00	00.00	0.00	00.00	0.00	0.00
N.	Patas- sum (K)						12.5			-	11.6			. <u></u>
	Sodium (No)						420				1470 20, 45			
	Magne-						7.40				8.14 2			
							715	-				-		
	Calcium (Ca)						177 8.83				172 8.58			
	Į .		2.9	٥ •	8.4	4.9	0 8	8	7.1	8.1	7.9	8.2	8.1	8.
Chanific	conductonce (micromhas		3484	3703	3731	3134	2985	3246	3300	3300	3390	3205	3876	9404
			28	81	91	71	83	75	79	8	91	92	46	60 60
	Dissolved oxygen ppm %So		0.6	ဆ ဆ	8.5	9.9	7.0	ħ.9	0.9	9•9	7.0	4.8	9.0	10.2
			- 22	ης	99	99	92	75	98	18	700	09	<del>1</del> 79	± 84
	Dischorge Temp in cfs in 4F		262	713	898	1294	466	851	9118	892	825	1183	584	711
	Date and time sampled	1957	1/8	2/8 1015	3/5	μ/9 1100	5/7	6/11 145	7/2	8/13	9/4	10/8	11/5	12/3

a iron (Fa), oluminum (Al), orsanic (As), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{QQ}{\sqrt{Q}}$  except as shown. Distermined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculated fram analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Labarates.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Pawer (LADWP), City of Los Angeles Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

AND VALES OF SURFACE WATER

ANALYSES OF SURFACE WATER

COLORADO RIVER BASIN REGION

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	Coliform d MPN/mi											Median 96	Max.	Min. 4.5
	- bid - ty ngg u	_	7	16	15	7	040	35	-5	-5	5	-5	-5	-5
	N CO										892 677			
	1		1106	1030	1026	1088	1129	1257	1330	1180		1226	1172	60 1086
	sod -		61	19	19	61	61	55	61	63	52	62	62	9
Total	Solved solids in ppm						3490				2343			1
	Ca 32) Diher constituents	) (STA. 52)					et CI				Pouo 6 8 NHu 0.6			
	Silica (SiO <sub>2</sub> )	DARY	91	7	<u>91</u>	25	07 10 10	7	ല	60	1.0 20	.91	<u>-31</u>	22
on hillian	Boran (B)	BOUNDARY)	1.70	1.54	1.46	1.52	1.64	1.34	1.80	1.98		1.66	1.64	1.32
per milion	Fluo- ride (F)	IAL					0.0				0.04			
10	N1- trate (NO <sub>S</sub> )	ATIO					10.6				15.3			
ports po	Chlo- ride (CI)	O (INTERNATIO	1022	26.65	920	27.50	1035	920	1340 37.79	1350	720	1350	32.43	27.92
	Sul - fore (SO <sub>4</sub> )	LEXICO			-		1118				851 17.72			
Mineral constituents in	Bicar - bonate (HCO <sub>3</sub> )	NEAR CAL	336	369	366	371	338 1	326	326	357	263	300	41h	387
ral con	Carbon- ate (CO <sub>3</sub> )	RIVER R	0.00	00.00	00.00	00.00	00.00	00.00	0000	00.00	00.00	00.00	00.00	0.00
Mine	Patas- Sium (K)	ç				•	0.28	<u> </u>			10.8			<u> </u>
	Sodium (No)	ALA					35.67				549			
	Magne- sium (Mg)						135				109			
	Colcium (Co.)		<u> </u>				230				178			
				0	60			0	60	0		0		<b>S</b>
	મું <b>અ</b> , ટું ટું ઉ		7.7	8	7.8	8.0	7.8	8.0	7.9	8.0	7.9	7.9	8.1	7.3
7.000	conductonce (micrombos at 25°C)		5155	2000	4831	5102	4761	0564	6024	6969	3891	6452	5155	5102
	Dissalved oxygen ppm %Sat		84	87	107	98	109	92	0	17	48	な	000	<del>4</del>
	Disso		9.0	h.6	10.2	8.2	9.5	7.0	0	5.8	7.0	9.2	10.0	5.0
	Te and of		58	54	ή9	ħ9	7/4	89		79	80	63	[19]	45
	Discharge Temp in cfs in PF		2.10	2.10	2,21	2.91	2.91	3.03	2.21	2,44	3.15	2,44	3.28	2.67
	Date and time sampled		1/8	2/8	3/5	0080 0800	5/7	6/11	7/2 0845	8/13 0630	9/4 0960	10/8	11/5	12/3

o Iran (Fe), oluminum (AI), arsenic (Ae), copper (Cu), tead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{90}{0.00}$  except as shawn. b Determined by addition of analyzed constituents

d Annul median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

e Mineral analyses made by USGS, Quality of Water Bronch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

CANALYSES OF SURFACE WATER CILORADO RIVER BASIN REGION TABLE B-16

wierrick (MWD). Los Angeles Dept of Woter & Power (L.ADWr), City of Los Angeles Dept of Pub Heolth (L.ADPH),

	Anolyzed by e		DWR	DWR									
	E E				Mediam 121	*.0	• 6	 			 	 	
	bid - Coliform				Med 121	Маж. 240	Min.					 	
I n	P A CE		7 5	3 -5				 			 		
	Hardness os CaCOs Total N C ppm ppm		402 257	386 243							 	 	
1	1 1		т т	1t1 36						·	 		
0 d	- 1							 			 		
P	solved solids in ppm		905	8814							 	 	
	tuents			«đ									
	Other constituents			링									
	Other		43	Pot 0.04									
	Silico (SiO <sub>2</sub> )	56a)	5	21									
Ilion	Boron (B)	(Sta 56a	0.20	0 14									
million per million	Fluo- rrde (F)	m	0.03	0.5									1
ports per million volents per mil	Ni- trote (NO <sub>3</sub> )	NEAR PILOT KNDB	1.8	3.5									
parts per equivalents		PII									 	 	
	Chla- ride (CI)		123 3.47	120 3.38									
Ē	Sul - fate (SD4)	CANAL	357	337									
constituents	Bicar- bonote (HCO <sub>3</sub> )		2.90	174				 					
E	Carbon - E	ALL AMERICAN	0.00	00.00				 					
Mineral		- <del> </del>			<del></del>				·		 	 <del></del>	-
	Po s s		2 5.6	5.1				 			 		
	Sodium (No)		129	128				 					
	Mogne- sium (Mg)		3.04	35 2.87				 					
	Colcium (Co)		100	1,84									
	Ha 🛶		80	8.3									
Specific	conductonce (micromhos at 25°C)		1351	1271									
			98	80									
	Dissolved oxygen ppm %So		0.8	8.9									1
			8 99	75 6									
	Dischorge Temp in cfs in dF		5910	7610									
	Dote ond time sompled	1957		9/16									

o iron (Fe), aluminum (Ai), areenic (Ae), copper (Cu), lead (Pb), mongonese (Mn), zinc (Zn), and chromium (Cr), reported here od 200 except as shown. D Determined by addition of anolyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analysee of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

A Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water Branch (Labert) or State Department of Water Resources (DWR), as Andicated f Field pH except when noted with a

ANALYSES OF SURFACE WATER COLORADO RIVER BASIN REGION TABLE B-16

						$\neg$
	Anolyzed by e		DWR	DWR		
	bid - Coliform		Median 3.32	Max. 6.2	0.23 0.23	
1	- P-d - P-d - C		-5-	-5-		1
F	N C PPM					+
	Hordness os CoCD <sub>3</sub> Tatol N C ppm		398 258	373236		+
L	L					$\perp$
P	sod -		38	94		4
Total	salved salids in ppm		998	809		
	Other constituents			ø		
	consti			0		
	Other		ď	PO 0.0		
		560)	1			$\dashv$
	(SiO <sub>2</sub> )		7	위		_
fion	Boran (B)	(Sta	0.16	11.0		
millian per millian	Flue- ride (F)		0.05	0.4 0.11 0.C.		
اقا		THE	1.7	2.3		
ports p		BL				1
"	Chio- ride (CI)	NEAR	106	3.05		
<u> </u>	Sul - fate (SO <sub>4</sub> )	RIVER NEAR BLYTHE	352	323		
stituent	Bicor – benate (HCO <sub>3</sub> )	COLORADO	170	167		
Mineral constituents	Corbon- ote (CD <sub>3</sub> )	COLO	0.00	00.0		
Mina	Potos- C sium (K)		5-4	4.8		
	Sodium P (Na)		1114	1114 11		
			36 1			$\dashv$
	Magne- sium (Mg)			2.87		
	Calcium (Ca)		3 100	3 92 4.59		
	₹ <b>₩</b>		80	8.		_
Specific	conductance (micromhos of 25°C)		1248	1199		
			46	88		
	Dissalved axygen ppm %Sa		<b>⊅</b> .	7.6		
			70	73		
	Discharge Temp		10,500	7870		
-			0	7		$\dashv$
	Date and time sampled	1957	5/15	9/17		
		1				

o Iran (Fe), oluminum (A1), arsenic (Aa), capper (Cul, lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 20 except as shawn. b Determined by addition of analyzed canetituents

c Gravimetric determination,

d Annual median and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif. Dept. of Public Health, Division of Labaratories.

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ANALYSES OF SURFACE WATER COLORADO RIVER BASIN REGION TABLE B-16

of Water & Pawer (LADWP), City of Los Angeles Dept of Pub Medith (LADM),

	Anolyzed by e	DWR	DWR
	Saliform d MPN/mi		Median 123 Max. 700 Min. 2.3
	bid - bid - hgg u	300-5	5-888-2
	Hardness as CaCO <sub>3</sub> Tatal N C		
	sod - or	98 <del>1</del> 04	19th
Total	solved or solids in apm	10901	1029
	Silica (SiO <sub>2</sub> ) Other constituents	10 s	10 Po <sub>4</sub> 0.0 a
loo	5	0.29	0.15
million per million	Flug- ride (F)	0.03	η°ο°ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο ο
		0.08	0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°0°
parts pe	Chla- ride (Cl)	RIVER BELOW MORELOS DAM  226 404 154 0.8  77 8.41 4.34 0.01	14.20 02.4
ē	Sul - fate (SO <sub>e</sub> )	R BELOI	7,98
constituents	Bicar- banate (HCO <sub>3</sub> )	226 3.71	3.46 211 211 211 211 211 211 211 211 211 21
	Carban - B.	COLORADO COLORADO S S O O O 3	0 0 0
Mineral	Patas- sium (K)	6 0.15	00.13
	Sodium (Na)	150	8 H
	Mogne- S	3.53	19 2 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 3 2 2 3 2 3 2 2 3 2 2 3 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2
	Calcium Mc	12t 6.19	5.69 3
-	S L	2 8 8	0 0
Specific	conductonce (micrombos at 25°C)	1557	1439
		8.	72
	Disso	8	6.2
	e Temp	8	23
	Discharge in cfs	0	\$ 00 T
	Date and time sampled	1957 5/15 2000	9/16 ••••   73 6.2 72 1439 8.0 114    43 148 5.2 0   211   393   149   2.2   1499   2.0   211   2014   0.13   0.00   3.46   7.96   4.20   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00   0.00

o Iran (Fe), oluminum (AI), arsenic (Ae), copper (Gu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here os UD except as shown. Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborateries.

e Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated
f Field pH except when noted with e

COLORADO RIVER BASIN REGION

Tur-	bid - Coliform Analyzed						
Tur-	- bid - ti mgg c				Median 2.3	Max. 70	Min. 0.23
			<u>بً</u>	2			
	N D		245-5	236			
			382	33.17			
Per-	sod –		39	8			
Total	solved solids in pom		8448	816			
	Other constituents		d	PO 0.00 NZ			
	Silica (SiO <sub>2</sub> )	. 55	77	25			
ign	Boron (B)	(Sta	0.26	0.14			
per million	Fluo- ride (F)		0.03	0.03			
12 1	trate (NO <sub>3</sub> )	N DAM	1.7	0.03	· ·		
parts pe	Chlo- ride (CI)	BELOW PARKER DAM	2.30	2.93		-	
Ē	Sul - fote (SO <sub>4</sub> )		#!:	320			
tituents	Bicor- bonate (HCO <sub>3</sub> )	RIVER	167	168	-		
Mineral constituents	Carbon- ate (CO <sub>3</sub> )	COLORADO	00.00	000			
Mine	Potos- C sium (K)	8	5.3	5.2			
	Sodium (No)		1114	108	-		
	Mogne- sum (Mg)		26 2.14	2.63			
	Catcium (Co)		5. E	1,84			
	E w		8.1	8.1			
Specific	conductonce (micrombos at 25°C)		1234	1200			
			89	92			
	Dissolved osygen ppm %Sa		8.2	8.0			
	e a a a a a a a a a a a a a a a a a a a		, <b>0</b>	73			
	Dischorge Temp in cfs in 9F		13,100	16,200			
C	ond time sompled	1957	5/15 0820	9/17			

o Iron (Fe), aluminum (AI), arsenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{\partial\Omega}{\partial\Omega}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annuol medion and range, respectively Colculated from analyses of duplicate manthly samples made by Calif. Dept. of Public Health, Divisian of Lobaratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pocific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LADPH),

Long Beach Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

SURFACE WATER

f Field pH except when noted with #

& Power (LADWF), Gity of Los Angeles Dapt of Pub Health (LADPH),

COLORADO RIVER BASIN REGION

	Analyzed by e		DWR	DWR	
	Hordness bid - Coliform d os CoCO <sub>3</sub> hy MPN/ml Totol N C			Median O.t2 Max. 1.3 Min. O.06	
	- bid - ty n ppm		-5	5	
	N C PPE		241	231	
			385	375	
	Sod -		33	8	
Total	Solved solved splids in ppm		820	802	
	Other constituents			Po <sub>t</sub> 0.0 0.0	
	Silico (SiO <sub>2</sub> )		72	35	
ugilli na	Boron (B)	<b>a</b>	0.18	00.30	
per million	Flup- ride (F)	(Sta	0.03	0.03	
parts per million equivalents per mill	Ni- trote (NO <sub>3</sub> )	ARIZONA	0.04	0.06	
equi	Chlo- ride (CI)		2.90	2,88 2,88	
ē	Sul - fote (SO <sub>4</sub> )	r TOPOCK,	330	317	
constituents	Bicor- bonote (HCO <sub>3</sub> )	RIVER AT	171	176 2,88	
Mineral con	Carbon- ate (CO <sub>3</sub> )	MDO R	2.14	0000	
Ā	Potos- sium (K)	COLORADO	5.1	0.13	
	Spdium (No)		112	108 4.,70	
	Mogne- sum (Mg)		36 2.96	2.55	
	Colcium (Co)		4.74	4.94	
	I G		0	N	
or grade of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the contr	conductance (micrombos of 25°C)		1211	1200	
			78	102	
	Disspived axygen ppm %So		8.0	<b>1</b> 6	
	Te ap		59	89	
	Dischorge Temp		11,200	12,800	
	Dote and time sompled	1957	5/14 2240	9/17 1700	

o Iron (Fe), aluminum (A1), preenic (Ae), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reparted here as 000 except as shawn.

b Determined by addition of analyzed constituents.

c Gravimetric determination,

d Annual median and range, respectively. Calculated from analyses at Luplicate martiny samples made by Calif. Dept of Public Health, Division of Labardories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water District (MWD), Las Angeles Dept. of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapoliton Water Branch (USGS), Pacific Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Chemical Ch

t Field pH except when noted with e-

ANALYSES OF SURFACE WATER TABLE B-16

	olyzed	by e		DWR	DWR			
	rm d An	IE/				Median 3.6	,	å m
	Califo	MPN/ml				Media 3.6	Max.	Ath.
	Pid-	E COE		9	249 -5			
	ardnes	as CaCO <sub>s</sub> Tatal N C ppm ppm		UNY 279				
-		sod - as		Th	47 417			
	al Pe	solved solids in ppm						
	وَمَّ	Sos:		1016	1023			
		ituents			ed .			
		Other canstituents			0.0			
		Othe		<b>e</b> 5	Polt			
		Silica (SiO <sub>2</sub> )	56)	의	15			
	e lie	Boron (B)	(Ste	0.26	0.22			
m.llio	per million	Fluo- ride (F)		0.03	0.03			
s per	- 1	NI- trate (NO <sub>3</sub> )	ARIZONA	1.7	1.5			
COLOGRAPIO ALVEN DASIN NECTOR	equivolents	Chlo- ride (CI)	- 1	157	159			
2 2		Sul - fote (SO <sub>4</sub> )	RIVER AT YUMA,	381	365			
o relve		Bicor- bonate (HCO <sub>3</sub> )		3.37	3.36			
Mineral constituents		Carbon- ote (CO <sub>3</sub> )	COLORADO	0000	0000			
2 2		Potos- sium (K)	<u> </u>	5.7	5.4			
		Sodium (Na)		152	168			
		Magne- srum (Mg)		3.45	34 2.79			
		Calcium (Ca)		110	111			
		I G		8 8.2	8.4			
	Specific	(micromhos at 25°C)		1495	1500			
				82	95			
	Dissol	oxygen ppm %Sa		7.2	7.8			
	Te a	0 0		72	79			
	Discharge	in of		1483	1,88			
		and time sampled	1957	5/15	9/16			

o Iron (Fe), oluminum (AI), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Za), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as ehown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

8 Mineral analyses made by USGS, Quality of Water Bronch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water & Power (LADWP), City of Las Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

ANALYSES OF SURFACE WATER COLORADO RIVER BASIN REGION TABLE B-16

of Wotner & Power (I ADWP), City of Los Angeles Daps of Pub Health (LADPHI),

	Anolyzed by a		MWD	MWD		MMD	MWD	MAD	MMD	M.eD	MAD	MWD	MWD	MWD	
	Caliform d MPN/ml														
	E Add u					6.0	9.0		0.3	1.2		0.3		9.0	
	N C O S						245		•		240				
			705	7105		381	371	396	361	352	350	352	358	360	
	Sod -		39	38		39	33	9	33	9	9	39	39	33	
Totol	Solved solids in ppm		842	825		783	776	773	260	740	731	737	738	741	
	Other constituents	(Sta 56d)		8			d				d			10	
١.	(S.O <sub>2</sub> )		10.3	8.3		8 8	9.1	9.7	9.6	8.9	8	7.6	2	9.5	
million per million	Boron (8)	INTAKE	1				•	•	1		Mleu	!	1	1	
per a	Fluo- ride (F)	- 1	1	ŀ		1	•	ı	1	<b>†•0</b>	0.02	1	•	न्•0	
parts per million equivalents per mil	rote (NO <sub>3</sub> )	DISTRICT	0.02	700		1.7	2.0	0.02	1.4 0.02	1.2	1.0	0.02	0.02	1.8 0.03	
equi	Chla- ride (CI)	WATER	3.16	3.02		2.90	2.93	2.93	105	102	2.85	2,85	2.76	2.76	
č	Sut - fote (SO <sub>4</sub> )	OLITAN	7.73	363		338	338	335	331	321	320	320	317	318	
constituents	Bicar- bonate (HCD <sub>3</sub> )	NETROPOLITAN	163	162		155 2.54	2.36	148 2.43	2,21	2.33	2.08	133	2.51	2.57	
Mineral co.	Carbon- ofe (CO <sub>3</sub> )	Υ	0.00	0.07		0.13	0.17	0.07	0.20	0000	0.13	50017	0000	0.00	
Ž.	Potos- srum (K)	HAVASU	0.15	0.15		6 0.15	6 0.15	0.15	0.13	6 0.15	5	0.13	0.13	0.13	
	Sodium (No)	LAKE	5.31	5.09		112	112	5.00	110	108	107	102	106	105	
	Magne- sium (Mg)		2.79	34.5 2.84		32.5	32.5	32 2.63	32 2.63	31	31 2.55	31.5	2.47	2.51	
	Calcium (Ca)		105 5.24	104 5.19		1.28 1.48	4.74	69° †	4.59	80 m	P 111-1	82.	16 16 16	46 169°11	
	Ha 🖦		8 2*	** %		8.3*	۳. ۲.	8	8 <u>.</u> h*	8.2*	± 00 €	4.8 T	7.9	8.1	
Special	canductance (micramhas at 25°C)		1295	1270		1215	1195	1200	1190	1150	1145	1145	1155	1150	,,
	Dissolved axygen ppm %Sat				pled										
	en or		51	95	Not Sampled	69	70	₹	₹	82	7	75	99	55	
	Discharge Temp				No.										
	Date and time sampled	1957	1/1	2/19	Mar	4/30	5/1μ	₹9	1/9	8/20	9/17	10/15	11/12	12/10	

o iron (Fa), oluminum (Al), orsanic (As), coppar (Cu), lead (Pb), manganase (Mn), zinc (Z.N), and chromlum (Cr), reparted here as \$\frac{QQ}{QQ}\$ except as shown. b Datarmined by addition of analyzed constituents. c Gravimetric determination.

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• Ministal analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water & Powsr (LADWP), City of Las Angelee Dept. of Water & Angelee Dept. of State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

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COLORADO RIVER BASIN REGION

		Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
		MPN/mi											Med1mr 62,000	Max. 700,000	Min. 6,200
	1	- bid - ty madd n		10	2	5	12	30	-5	30	35	500	45	100	55
												1104			
				928	1001	1082	1145	1173	1250	1250	1420	1308 1104 500	1264	1140	1178
		Poor Poor		59	62	₹	63	62	62	63	<del>1</del> 9	62	63	62	63
	Totol	Solved solids in ppm						3970				4598			
		Other constituents						ď				Pou . 76 NHu 0.3	70.00		
		Silico (SiO <sub>2</sub> )	4 57					2				扫			A.,
	Ilion	Boron (B)	(S-ta	0.76	1.02	1,16	1,22	1,24	1,38	1,28	1,46	1,18	1.24	1,08	1.32
	per million	Fluo- ride (F)	RY					0.00				0.04			
	5   5	Ni- trote (NO <sub>3</sub> )	BOUNDARY					1.2 0.4 0.02 0.02				13.5 0.8 0.22 0.04			
· I	equivolents	Chlo- ride (Cl)	AT INTERNATIONAL BO	27.64	1265	1435	1520 42.86	1505	1610	1720	2070 58.37	1730	1750	1530	1640
	Ē	Sul - fote (SO <sub>4</sub> )	TERN					821				814 16.96			
	constituents	Bicor – bonote (HCO <sub>3</sub> )		256	267	269	4.57	256 821 4,2017.11	256	3.46	3.62	4.07	262	237	260
		Corbon-	RIVER	00.00	0000	00.00	00.00	0000	00.00	50016	000	780	000	000	0000
	Mineral	Polos- C sium (K)	NE					0.74				27.3			
		(No)			-		•	39.58				13.07		-	
		Mogne- S. (Mg)	,			<u> </u>		134				12.74			
		Colcium M						249 134 12.4311.01				269 13.42			
		E 64		7.8	8.0	7.6	7.8	7.8	7.4	7.8	7.9	8.1.	8.0	8.1	8.3
	Specific	conductance (micromhos of 25°C)		50111	5376	5681	5882	5882	5813	0149	7462	6536	6489	5376	5714
				33	19	56	25	35	848	13	23	1+7	19	72	72
		Dissolved oxygen ppm %So		3.5	6.8	2.5	2.4	3.0	84 4.4	1.0	1.8	3.7	5.6	7.0	8.6
				95	52	63	η9	74	68	98	82	83	89	63	3
		Dischorge Temp		169	104	£	77	96	70	61	<del>1</del> 9	118	₹8	122	80
		Dote ond time sompled	1957	1/8	2/8	3/5	4/9	5/7	6/11	. 0800	8/13 0545	9/4	10/8	11/5	12/3 0640

a iron (Fe), oluminum (Al), preenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reported here oe 300 except as shown. B Determined by addition of analyzed constituents. c Gravimetric determination.

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TABLE IN TO STREET WATER

† Field pH except when noted with e-

ANALYSES OF SURFACE WATER COLORADO RIVER BASIN REGION TABLE B-16

or Water & Power (LADWIP), City of Low Angeles Dapt of Pub Hestiff (LADPH),

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	Coliform A MPN/mi		Ω	А	Ω	Д	D	Ω	А	Q	Д			23 D
	bid - Coli		300	200	200	350	250	260	180	200	270	250 Median 2,300	200 Max.	38a
<u> </u>	CO <sub>3</sub>		~	- 2	- 2	<u></u>			7	- 5	2 000	- 2	2	<u> </u>
	Mordness os CoCO <sub>3</sub> Total N C ppm opm		937	972	953	919	923 725	876	899	260	879 700	873	963	935
	sod -		59	62	61	59	59	57	59	99	61	58	19	62
Tatol	Solved solved in ppm						2940				2824			
	Other constituents						ed .				PO <sub>L</sub> O 47	000		
1	ON Silico		91	9	9	32	12 92	7	ន្ល	21	<u>8</u>	-21	हा	ਨ
per million	0- Boron (e) (B)	28)	0.76	1.10	96-0	0.82	0.6 0.96	16.0	00.0	0.76	93 0.76	0.72	7.	1.04
ē	Fluor ride (F)	(Sta					10				23 0.03			
parts p equivalents	Ni- trote (NO <sub>S</sub> )	)			-1.		9.1		01=		12.2	Olio	iol +	101 <del>0</del>
nbə	Chio- ride (Ci)	NEW RIVER NEAR WESTMORLAND	1050	32.85	1050	27.21	27.50	25.38	27.64	30.74	965	27.05	33.14	31.44
C.	Sul - fote (SD <sub>4</sub> )	AR WE					14.22				14.32			
constituents	Bicor- bonote (HCO <sub>3</sub> )	TER NE	246	249	244 4.00	246	240 3.94	3.97	3.93	3.65	3.58	3.92	3.97	246
Mineral con	Carbon- ote (CO <sub>S</sub> )	EW RI	0000	00.0	0.00	0000	0.00	0.00	0000	0000	0.00	0.00	0000	0000
Min	Potos- sum (K)		,	-			0.40		·		13.2			
	Sodium (No)	-					630				639			
	Mogne- S			<del></del>			100				8.14 2			
	Colcium (Co)						205 10.23 8.22				189			
	9 Ha		ω,	7.8	7.2	7.7	7.8	8.0	7.9	8.0	8.1	0.0	8.1	7.9
oecefic	(micramhos at 25°C)		4739 7	5102 7	4545	1 2464	3921 7	4329 E	4292 7	10011	4115	43C4	) ††††††	4329 7
5			72	65	75	62	65	69	69	73	11	84	70	Ľ
	Osygen ppm %So		7.5	7.0	7.0	5.8	5.5	6.9	5.2	5.6	0.9	8.0	0.0	0.0
	eo Eo		58	54	62	99	75	73	85	†€	85	68	т9	50
	Dischorge in cfs		909	523	595	655	9119	295	522	643	577	635	187	507
1	Dote and time sampled	1957	1/8	2/8	3/5 1230	4/9 1010	5/7	6/11	7/2	8/13 1000	9/4 1045	10/8	11/5	12/3

o Iron (Fe), aluminum (AI), arsenic (Ae), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here a  $\frac{QQ}{a + c}$  except as shown. b Determined by addition of analyzed constituents.

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COLORADO RIVER BASIN REGION

	9									
	Analyzed by a			DWR	DWR	DWR	DWR	DWR	DWR	DWR
	Caliform d MPN/mi							MedianDWR 0.45	Max. 6.2	Man. 0.45
	Tur- bid- ty			-5	1,	11	00	-5	-5	5-
-	SSS SO	D E dd		1			6995			
	Hord as Co	Tatal		5850	5720	5780	33752 79 5845	5590	5800	5890
	cent cent sod –			1	78	78	79	2	79	78
	solved solved	E 0		34400			3375			
	Other constituents						ed ed			
	Silica	(201C)		1			15			
c .	Baron		<b>4</b> 68 <b>a</b> )	8.00	7.2	7.4	8.1	7:3	2.6	7.3
milio	Fluo- Bard	(F)	(Sta	!			4.0 0.21			
be.		(NOs)	PARK	000			50.5			
outcoments in pastin region	Chia- Ni-	(C)	SEA STATE	14200	14250	14400	14500 50.5 408.9 0.82	16900	14300	14400
7 5 2	Sut -	(80%)	SALTON S	6380			6955			
canstituents			AT SAL	200	3.43	3.16	3.65144.8	3.年	3.33	2.39
aral can	1 22	(co <sub>3</sub> )	SALTON SEA AT	00.00	0.00	00.00	00.00	00.00	00.00	1.03
Minaral	Potas-	3	SALT	3.68	-	-				
	Sodium	(0 N)		9700		·	770 955 10250 140 38.40 78.50 445.9 3.58			
	Magne	(Mg)					255 1			
	Calcium	(62)		700 1000 35.0 82.2	_		77.0 8.40			
	I	<b>6</b> 4		त्र %	7.8	<b>⊅.</b> ⊗		π° ε	ղ. Ձ	9
	Specific conductonce (micramhos			37400 8	42010 8.4	34960	42194 8.4	η 10202η	43860	ηποξο 8.6
		%Sat		81	171	114	200	107	82	68
	Dissalved	mdd		η•9	7.0	8.2	10.0	e0	7.2	0.6
	Temp in OF			82	91	93	98	79	ג	23
	Discharge Temp in cfs in 0F									
	Date and time sampled		1957	00/11	7/2	8/13	9/4 1215	10/8	11/5	12/3

a Iran (Fe), aluminum (AI), greenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{QQ}{QOD}$  except as shawn. b Determined by addition of analyzed constituents.

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ACCOUNTS OF THE PARTY ACT WAS THE

\* Field pH except when noted with a

ANALYSES OF SURFACE WATER

Los Angelsa Dapi of Woter & Power (I ADWF), City of Los Angelsa Dapi of Pub Madith (LADPH),

COLORADO RIVER BASIN REGION

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR						
	S bid-Coliform d i ppm								Median 230	Max. 2400	Min. 62			
	- pod -		165	140	38	8	13	1 <sub>th</sub>	<i>1-</i>		- Birth			
	CO <sub>3</sub>				358									
	Hardr Os Ca Totol PPm		584	276	578	559	999	299						
	Per- cent sod -		61	62	ħ9	69	69	68						
	solved salids in ppm		2112		2027				-					
	Other constituents				PO 4 0.29									
	Silico (SiO <sub>2</sub> )		15		15									
	8_	(986)	0.56	0.56	79.0	0.56	0.98	0-70				-		
lillon	Fluo- Borr	(Sta 68b)	1.2	_01	3 6		0'	0!						
1 40		<u> </u>	0.13 0.13		0.18 0.07									
pod	Chlo- Ni-	AT MECCA	11.56	10.91	11.70	12.58	16.64	620 17,48					·	0
Ē	Sul - tote (SO <sub>4</sub> )		746		16.19									
	Bicor Si bonote 1 (HCD <sub>9</sub> ) (S	WHITEWATER RIVER	201	256 4.20	268 4.40	281	3.69	506						
Mingrol constituents	Corbon - B	HITEWA	0000	0.00	000	00.0	00.00	0000						
Miner	Potas- Co sum (K)	351	11.8		12.6	1-			_					17.
	Sodium P (No)		18.62		476									
	Mogne- Sod sium (Mg)		16 42 3.78 18.		11 20 T				<del></del>					
	Colcium Sig			·										
-			8.3 157	8.2	8.4 149	8.2	8.3	8.3						
-	00 8 (C)													
	Specific conductonce (micromhas of 25°C)		3021	2890	2950	3049	6101	1065						
			%	112	83	105	98	89						
	Dissolved oxygen ppm %Sq		7.2	8.0	7.0	9°t 105	0.6	9.6						
			87	† <sub>8</sub>	83	69	89	ने,						
	Dischorge Temp		est 35	100	est &	est 75	₹\$.	est 50						
	Dote ond time sompled			9/4	10/8	11/5	12/3							

o Iron (Fe), aluminum (AI), arssnic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zh), and chromium (Cr), reported here as and a same as and as a same.

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f Field pH except when noted with a

COLOHADO RIVER BASIN REGION

		Analyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
		a bid - Coliform a liy MPN/ml											22 Median 3.4	-5 Max.	-5 Min.	
	T o'r	- bid - th mgg u			-5	-5	-5	-5	5	-5	-5	12	22	-5	7	
		D N da						3				23				
		1 1			218	206	196	208	200	202	200	196	175	215	206	
_	Per-	sod -			13	15	7.1	13	13	12	7.	15	15	13	7,	_
	Total	solved solids in ppm						285				275				
		Other constituents						ಭ				PO 000 0				
		(SiD <sub>2</sub> )					-01	20	<u> </u>	01		0 15	0:	0.	01	_
c	Ilian	Boron (B)	(89)		0.00	0.10	00.00	0.00	0.00	0.00	0:00	0.00	0.00	0.0	0.00	
parts per million	per millian	Flua- ride (F)	Sta					0.0				000				
parts per		Ni- frofe (ND <sub>3</sub> )						1.0				1.3				
	equivolents	Chia- ride (CI)	WHI TEWATER		6.17	0.20	60.17	0.11	μ 0.11	0.11	14 0.11	0.14	14.0	0.14	6 0.17	
	ē	Sul - fate (SO <sub>4</sub> )	R AT					0.93				0.95				
	stituents	Bicar- bonate (HCO <sub>3</sub> )	R RIVER		3.70	3.56	3.51	3.62	3.43	3.62	216	211 3.46	197	3.80	3.75	
	Mineral constituents	Carbon- ate (CO <sub>3</sub> )	WHITEWATER		0.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	00.00	0.00	0.00	
	Μ	Patas- sium (K)	MH.					3.2				4.2 0.11				
		Sadium (No)						15 0.65				16				
		Magne- sium (Mg)					-	16				1.23			-	
		Calcium M						2.84				54				
-		- 1			0.0	#	6	7.5	8.0	7.7	7.9	8.2	7°8	7.5	7.8	$\dashv$
$\vdash$		<u>a</u>				7.4	7.9									-
	Speci	conductance (micromhos of 25°C)			483	994	644	420	424	B94	453	478	1405	944	1460	
					<del>1</del> 8	87	128	100	<b>π</b> 8	98	107	89	103	718	82	
		Dissalved oxygen ppm %S			8.2	8.0	8.0	9.5 100	8) O	7-7	9.8 107	8.0	9.6	8.0	8.0	
		Temp in of			63	89	119	99	49	70	68	70	29	59	63	
		Discharge Temp		Dry	2.6	7.1	5.6	9° ti	5•3	ಎ. ಸ	0.6	8.5	1.2	2.8	6.1	
	į	Date and time sampled	1957	1/8 1615	2/8 1415	3/6 1435	4/9	577 1530	6/11	7/2 1415	8/13 1400	9/5	10/8	11/5	12/3	

a Iran (Fe), aluminum (AI), areenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chramium (Cr), reparted here as 300 except as ehown.

b Determined by addition of analyzed constituents.

c Gravimstric determination.

d Annual median and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif. Deat of Public Health, Division of Laborates.

Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapolitan Water District (MWD), Las Angeles Deat: of Water & Pawer (LADWP), City of Las Angeles Deat at Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated \* Field pH except when noted with #

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## ANALYSES OF SURFACE WATER

and doctypes mode by 1853. Guality of Works Uranch (USCS), Praffia Chemical Cocquitant (PCC), Metropolitan top Renote Dept of Post Health at 1855. Could be State Destructment of Water (Secretaes INWIN), as Indicated

one present or experience of Worker & Power (I ADWP), City of Los Angeles Dapt of Poli Henrith (I AGHH),

SANTA ANA REGION

Г															
		Anasyzed by e		DYR.	DWR	DWR	D'A'R	DWR	D'AR				-	BYR	E. H.
	,	bid - Colform of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the populatio										:	620	Max.	730
	_ Iur =	- bid -		12	-5-	-5	-5	20	-5					5	09
		N C						2						0	
				231	288	301	412	396	344					233	282
	0	sod -		29	33	32	26	26	26					37	36
	Total	Salved solids in ppm						049						961	
		Other constituents						<b>a</b> d							
		Silica (SiO <sub>2</sub> )						2							
	11100	Boron (B)		0.10	0.15	0.19	0.11	0.02	0.18					0.08	0.23
o.H.w	per million	Flua- ride (F)	(%)					0.02						0.1	
action see milion	i	rrate (NO <sub>3</sub> )	(Sta					4.0		_				45°0	
	equivalents	Chia- ride (CI)	CHINO CREEK NEAR CHINO	29	32	1.18	35	1.04	29 0.82			-		32	1.61
	Ē	Sul - fate (SD4)	K NEA				- · · ·	3.13						148 0.99	
	constituents	Bicar- banate (HCO <sub>3</sub> )	O CREE	259	347	299	389	392	376					301	34 <u>1</u> 5.5 <sup>7</sup>
	Mineral can	Carbon- ate (CO <sub>3</sub> )	CHIN	0.00	00.00	00.00	0.57	00.00	0000					00.00	0000
	ž	Potas- sium (K)						6.5						1 0 36	
		Sadium (Na)						2.87						63	
		Magne- sium (Mg)						2.22	,					1,56	
		Calcium (Ca)				· -		114				<del></del>		3.14	
-		Ha 😘		7.8	8.2	7.6	8.0	# #	8.1					8 16/	7.9
	Specific	(micramhas at 25°C)		661	837	874	1006	606	859					960	917
				75	96	49	110	85	78					85	85
		Dissolved oxygen ppm %So		7.8	9.5	0.9	10.5	8.0	7.0					9.8	9.2
				25	61	99	19	65	70					84	53
		Discharge Temp		est 2	as so	est 1	est	1 1	- 1	dry	dry	dry	dry	48 4	e = =
		Date ond time sompled	1957	1/8	2/7	3/6	0560	5/7	6/11	July	Aug	Sept. 4 1500	Oot.	11/6	12/3

o Iran (Fe), aluminum (AI), arssnic (As), capper (Cu), Isad (Pb), manganese (Mn), zinc (Zn), and chromium (Gr), reported here as  $\frac{QQ}{QQ}$  except as shown. D Determined by addition of analyzed constituents.

c Gravimetric difermination,

d Annual median and range, respectively Calculoted from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Laborates.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angeles Dept. of Water (LADWP), City of Los Angeles Dept. of Angeles Dept. of Water Resources (DWR), as indicated

Long Beach Dept of Pub Health (LBDPH) ar State Department of Water Resources (DWR), as indicated

\* Field pH except when noted with a

ANALYSES OF SURFACE WATER SANTA ANA REGION TABLE B-17

	Anolyzed by e			DWR	DWR											
	Caliform d MPN/mi															-
ŀ	pid u			100	7					-						 
	CO3 PPD C															
	1 1			1117	96										<del></del>	 
	solids ium			19581 98	66											 · · · · · · · · · · · · · · · · · · ·
<u> </u>				19												
	Other constituents															
ı	Silica (SiO <sub>2</sub> )			81	2.10											
parts per millian equivalents per million	uo- Boron	(Sta 89)	_	9	7.											 
parts per millian valents per mil	Ni- frote (NO <sub>3</sub> ) (F)			28 0.45						-	·					 
ports	z ž ž	SINOF			0110											
ě	Chio- ride (Ci)	NEAR ELSINORE	_	7350	10250 289.05											
<u>c</u>	Sul - fate (SO <sub>4</sub> )			4055												
constituents	Bicor- banate (HCD <sub>3</sub> )	ELSINORE		771 4055 12.64 84.47	1145											
	Carbon- ate (CO <sub>5</sub> )	LAKE		269	343											
Mineral	Potas. (X)			104	<u> </u>											
	Sodium (No)			9000												
	Magne- S sum (Mg)			1.97												
	Calcium (Co)			0.40												 
	H 🖦				. <del></del>									<del></del>		 
0	conductonce (micromhos ot 25°C)			26320 5	35399											
o o	lved cond gen (mic			26	96   35											
	Dissolved oxygen ppm %Sal			1	0.6											
				63	99						-					
	Dischorge Temp in cfs in 0F		dry	Lake	Lake	dry	dry	dry	dry	dry	dry	dry	dry	dry		
	Dote and time sampled	1957	1/7	2/7 1200	3/4	4/8 1145	May	June	July	Aug	9/3	Oct	Now	Dec		

a Iron (Fe), aluminum (AI), arethic (Ae), copper (Cu), tead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{900}$  except as shown. b Determined by addition at analyzed constituents.

c Gravimetric determination.

d Annual medion and range, respectively. Calculated fram analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laboratories.

8 Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Los Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

authoria mode by Calif Daps of Public Mealth, Division of Loboratoriae

SANTA ANA REGION

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
	MPN/mi											Median 4.5	Мах.	Min. 0.6	
1 2	- bid ify In ppm		~	-5	-5	-5	-5	9	-5	-5	-5	-5	-5	5	
	Hardness os CaCO <sub>3</sub> os CaCO <sub>3</sub> ppm ppm										7				
			82	93	68	90	96	92	83	86	101	97	90	95	
d	sod -		27	27	56	28	56	25	22	21	23	23	27	27	
Totol	Salved solids in ppm					1-	153			ı	173				
	Other constituents						ed .				POl4: 0.2				
	(SiO <sub>2</sub> )						72	mb t			120	0.		01	
dlion	Boron (B)	(915)	0.08	0.02	0.08	0.00	0.05	0.04	0.01	000	0000	0.00	0.00	00.00	
million per million	Fluo- ride (F)	Sta					0.02				0.02				
15	Ni- trate (NO <sub>3</sub> )						0.01				1.1				
parts pe	Chio- ride (N)	ANA RIVER LEAR MENTONE	6 0.17	6.17	0.14	0.14	0.14	0.09	0.09	0.14	0.14	8.0	0.14	0.14	
c.	Sul - fote (SO <sub>4</sub> )	SA AS					27				26				
		RIVE	110	127	112	124 2.03	1.96	11.80	11.84	112	1.87	124	122	124	
constituents	- Bicor- bonate (HCO <sub>3</sub> )		-		_	_		<u> </u>							_
Minerol	Carban- ate (CO <sub>3</sub> )	SANTA	00.00	0.00	00.00	0000	0.00	0.00	0.0	0.00	0.00	0.00	0.00	0000	
Ž	Potas- sium (K)						0.05				0.04				
	Sodium (Na)						16				14 0.61				
	Mogne- S. S.um (Mg)						93.0				99.0	_			$\exists$
	M & C						-								$\dashv$
	Colcium (Co)			~	-2		2 25				1.35	<del></del>		**	4
-	7 tu		7.8	8.3	8.2	8	8.2	<u>د</u>	8	8	8	ω	8.1	ω˙	$\dashv$
900	conductance (micrombos at 25°C)		235	226	218	241	243	208	216	243	247	262	243	264	
	Dissolved oxygen ppm %Sat		88	88	83	76	76 +	97	83	93	0 79	η <sub>6</sub> ο	96 7	5 66	
	Disso		110	10.5	9.44	10,0	10.4	100	8.0	0.6	ο• ο•	10.0	11.4	11.5	
	Temp in OF		143	941	50	55	52	58	63	61	59	56	941	64	
	Disconarge Temp in cfs in 9F		est 148	est 26.8	ast 39	38 t	3th	est 38	est 25	est 30	est 48	36 36	est 36	est 36	
	Dote and time sampled	1957	1/8	2/7	3/5	1400	5/7	6/11	7/2	8/6 1210	9/5	10/8	11/5	12/3	

a Iron (Fe), aluminum (AI), oreenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), ond chromium (Cr), reported here as  $\frac{00}{000}$  except ae shown.

b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively Calculoted from analyses of duplicate manthly samples made by Calif. Dept of Public Health, Division of Laborataries.

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f Field pH except when noted with e-

TABLE B-17
ANALYSES OF SURFACE WATER
SANTA ANA HEGION

		Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
		Colitorm MPN/mi											Median 62	-5 Max. 2400	Min. 23	
		- piq		800		<u> </u>	25	-5-	2	-5	5	5	5-	-5	-5	
		Hordness os CaCO <sub>3</sub> Totol N C ppm ppm										7.				
				284	348	356	363	358	339	367	£	343	325	338	357	
	Q	sod +		35	35	36	35	35	36	33	36	%	37	37	35	
	Total	Solved Solids in ppm		2 2 2	740		\$ 60	189	. 4	-		627	300		15	
	:	Other constituents						2 2 2	74.			PO4:1.16 & NH4: 0.0	4 4 2			
		(2015)	-1	~	\01	~	21	2 15	10	81	<i>=</i> 1	1 25	<b>-</b>	<u>ω</u> ι	<b>∞</b> Ι	$\downarrow$
	illion	Boron (B)	510)	72.0	0.36	 	0.32	0.35	0°45	0.32	0034	[h.0]	110	0.28	0.28	
	votents per million	Fluo- ride (F)	Sta	_				0.0				0.0				
	0	N - trate (NO <sub>3</sub> )						11.6				9.5				7
	equivolents	Chlo- ride (Ci)	AT NORCO	2.62	3.24	3.30	3.33	3.19	3.19	3.41	3.16	3.50	3.41	3.13	3.21	
	č	Sul - fate (SO <sub>4</sub> )	IVER					10 <sup>4</sup>				2.01				
	constituents	Bicar Si bonate ( (HCD <sub>3</sub> ) (9	ANA RIVER	256	321	326	336	336 2	318	340	330	328 5.37 2.	285	332	311	-
5		Carbon - B	SANTA													
	Minerol	000	011	0.00	00.00	00.00	0.00	3 0.00	00.00	000	0000	3 0.00	0.77	00.00	0.30	4
		Potos- Sium (K)						5.0				5.0				
		Sodium (No)						3.92				3.96				
		Magne- sum (Mg)						2 <sup>t</sup>				1.97				
		E C														+
		Calcium (Co)		*	<b>~</b>	90		2 104 5.19				1, 98		- 01		
-		¥ 64		7.1*	7.8	7.8	8	8.2	7.7	8,3	8.3	8.1	8.3	8.2	w 0	
	Specific	conductance (micromhos at 25°C)		938	1082	1098	1112	1089	1042	1115	1017	1089	1031	1067	1085	
				83	80	74	90	81	88	89	92	104	87	96	711	
		Dissolved oxygen ppm %So		8.6	8.0	6.8	8.0	7.6	7.5	9.9	8.0	8 8	8° C	10°h	10.5	
		E o o o		23	61	89	71	99	92	88	7.	7	89	λ 14 5	22 10	1
		Discharge in cfs		#	38	34	30	56	32	27	21	5ф	56	£43	32	
		Dote and time sompled	1957	1/8	2/7	3/6	4/9 1140	5/7	6/11	7/2	0460 0840	9/4 1600	10/8 1045	11/6	12/3	

o Iran (Fe), aluminum (AI), areanic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 200 except as ehown.

b Determined by addition of analyzed constituents

c Gravimetric determination.

d Annual median and range, respectively Calculoted from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborotosies.

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ANALYSES OF SURFACE WATER

Field pH except when noted with #

ANALYSES OF SURFACE WATER IABLE "" 1/

SANTA ANA REGION

	Analyzed by e			DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	MPN/mi												Median 96	Max. 1300	Min. 2.3
	Tur- bid- y- Lyy			3600	09	30	12	5	9	3	5	4	4	160	
	200 S				85							83			
		2		274	348	358	344	353	342	355	338	नेगर	335	329	346
	Sod -			32	33	33	33	32	35	31	34	34	34	34	32
	Salved solids in ppm	0		906	989	637	613	949	809	657	642	645	619	809	618
	Other constituents					NHu: 0.0	мн <sub>4</sub> : -0.72	ø				PO <sub>1</sub> ,: 0,47 NH <sub>4</sub> : 0,00	NH <sub>4</sub> 0.04 0.02		
	Silica (SiD <sub>2</sub> )			<b>N</b>				ম	2	27		20	থ		23
6	Boron (B)		514)	0.25	0.22	0.23	0.23	0.25	0.37	0.23	0.23	0.28	0.28	0.27	0.17
nullian C	Flua-Bore		Sta	0.6	0.2	0.5	0.02	0.03	0.03	0.02	0.6	0.03	0.0	0.0	0.00
parts per	_		3	12.4 0.20	0.19	0.19	18.6	8.9	12.8	0.13	17.7	8.8 0.14	0.20	14.5	13.5
	Chia- ride (CI)		PRADO DAM	81 2.28	2.71	2.79	2.79	2.74	2.85	106	2.90	3.13	$\frac{113}{3.19}$	2.85	2.85
<u> </u>	Sul - fore (SO <sub>4</sub> )		BELOW	1.99	106 2.25	112 2.34	103	107	10 <sup>4</sup>	108 2.25	2.10	108 2.24	2.08	1.99	2.07
canstituents	Bicar – banate (HCO <sub>3</sub> )		RIVER B	3.96	321	323	323	325	321	323	317	318	278	318	320
Mineral car	Carbon- ate (CO <sub>5</sub> )		ANA	0000	00.00	0.00	00.00	0000	00.00	0000	00.00	00.00	23	0.00	00.00
Min	Patas- sium (K)		SANTA	10.6 0.27	4.2	6.2	0.10	4.3	4.9 0.13	4.3	3.8	14. ld	0.11	6.0	4.5
	Sodium (No)			2.52	343	3.57	3.39	3.35	3.48	3.22	3-48	3.65	3.48	3.35	3.31
	Magne- sium (Mg)			1.56	1.98	2.22	1.89	25 2.06	2.06	25 2.06	30	1.89	2.30	1.89	1.97
	Calcium (Ca)			3.94	1000	96.4	1000	100	4.79	101	4.34	1000	4.39	4.74	4.94
	± ₩	ļ		7.6	8.2	8.1	8.2	8.1	8.3	8.1	8.3	<b>1</b> •8	<b>1</b> •8	80	8.2
	Specific conductance (micromhas at 25°C)			838	1029	1038	1038	366	996	1030	1035	1005	1013	991	1013
	( 44			83	46	79	46	98	87	85	93	81	92	96	90
	Dissolved axygen ppm %Sa			9.8	10.0	7.2	0.6	8.2	8.0	6.8	8.5	9*9	0.6	10.4	9.5
	Temp in of			23	58	99	69	<b>1</b> 19	68	81	89	3	62	<del>1</del> 5	95
	Discharge in cfs			91	81	81	62	61	62	34	29	22	35	62	53
	Date and time sampled		1957	1/8	2/7 1220	3/6	4/9 1030	5/7	6/11	7/2	8/6 0830	9/4 1515	10/8 0945	11/6	12/3 10 <sup>4</sup> 5

o Iran (Fe), aluminum (ΔI), arsenic (Δs), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as 20 except as shown.

b Determined by addition of analyzed constituents.

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ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE B-17 SANTA ANA REGION

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	MPN/mi											Median 230	Max. 7000	Min. 23
1	- bid - fy in ppin		15	-5	15	-5	5-	5-	-5	5	-5	5	-5	-5
	N CO3									<b>~</b> )	16			
	1 1		356	340	361	356	356	365	357	278	356	297	355	359
0	sod –		31	32	31	30	8	28	26	3#	30	34	30	31
Total	Drs- solved solids in ppm						9479				959			
	Other constituents						od .				ь 90.0:409			
	(S.102)	514)	%I	23	শ্র	<u>81</u>	श	21	<b>=</b> 1	801	20 20	<u> </u>	表1	5)
non	Boron (B)		0.08	0.07	0.15	0.0	5 0.13	0.10	0.11	0.08	6 0.15	0.13	0.0	0.05
ports per million volents per mil	Fluo- ride (F)	(54					0.03				0.03			
orts pe	Ni- trote (NO <sub>3</sub> )	SIDE					20.2				0.31			9
ports per million equivolents per million	Chlo- ride (Ci)	AT RIVERSIDE	2.71	2.74	2.65	2.74	2.62	91 2.57	91 2.57	2.59	100	102	2.59	$\frac{0}{0.00}$ $\frac{330}{5.41}$ $\frac{97}{2.74}$ 0.00
⊆ :	Sul - fote (SO <sub>4</sub> )	RIVER					1.84				1.93			+
constituents	Bicor- bonote (HCO <sub>3</sub> )	ANA	316	315	329	326	326	329	326	263 4.31	323	287 4.70	330	330
Mineral con	Carbon- ote (CO <sub>3</sub> )	SANTA	0.00	00.00	0.00	00.00	00.00	0.00	00.00	00.00	00.0	00.00	0000	0000
Σ	otas- sium (K)						4.8				4.1 0.11			
	Sodium (No)						3.09				3.05			
	Magne- So sum (Mg)						24 1.97 3.				1.73 3.			
	Colcium (Ca)						5.14							
-			7°F	7-7	7.3	7.9	7.9 1	7.8	8	80	8.0 108	8.1	8	7.6
0	conductonce pH (micromhos pH of 25°C)		1005 7	985 7	1010 7	666	366	972 7	946	882	1766	1183 6	981 8	26 66 8.0 86 1057 7.6
0			76 1		80	92	88	76	73		- 64	- 16	79	- 1
	Dissolved oxygen ppm %So		7.6 7	್ಯ %	7.8	8.0	# 8 # 8	8.0	6.6 7	8.2	7.2 7	8.5	8.2 7	8.0
-			61 7	19 19	63 7.	74 8,	- R9	76 8.	75 6.	00	68 7.	71 8.	57 8.	8 99
-	Dischorge Temp		<del></del>	9										9
	Discho In cf		35	31	28 28	25	24	26	27	23	23	23	28	56
	Dote ond time sompled	1957	1/8	2/7	3/5 1745	4/9 1230	5/7	6/11	7/2	8/6 1040	9/4 1710	10/8	11/5	12/3

o Iron (Fe), aluminum (AI), areanc (As), copper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chramium (Cr), reported here as  $\frac{QQ}{QQ0}$  except as ehown. b Determined by addition of analyzed constituents

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of Woler & Power (LADWP), City of Los Angeles Dept of Pub Heolth (LADPH),

SANTA ANA REGION

		Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	
		Coliform MPN/mi											Median 23,000	140 Mex.	Min. 230	
	1 2	- piq		160	2	2000	5	9	11	12	<u>~</u>	5	150	91	£	
				,								33				
		Hordr as Co Totol ppm		155	202	193	165	176	171	180	182	192	ካ02	194	212	
	۵	sod –		12	33	32	95	54	52	22	2	£43	#	6†1	14	
	Total	5 olved solved solids in ppm		454	9541	374	510	584	1490	492	512	141	478	512	541	
		Other canstituents		5/3	10 573	4 4 7	83 CR =	46 -27	12.3 COU	50 62×	13 562	25 a 547	2.5	14.2 133	85 / 1.	
		Other c		NH <sub>1</sub> 16.4	NH <sub>μ</sub> 20	NH4 2.5	NH <sub>4</sub> 14.9	NH4 8.3	NH <sub>1</sub> 1.2	NH <sub>14</sub> 9.0	NH <sub>4</sub> 2.3	NH1, 0.95	N 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	NH 1 1	NH, 15	
		(\$\capsiloc\squares(\squares)\$)		원	Ź	Z	Z	25 N		 있	<u> </u>	25 N		<u> </u>		
		S. (S.	50b)	•	53	71	<b>F</b>		<u></u>	0.35 3	7,1	2-38 2	0.23	0.25	0.33	
	per million	o- Boron (B)	(Ste 50	3.07	1 0.29 07	53	0° 41	0.38	050	0 0	00 00.34	1.0 0.05		0.0	0.05	
	Dec 3	Fluo- ride (F)	(S		1.4	0.0	7 0.05	1000	3 1.0	0.05	0.05		0.05		200	
	equivolents per	Ni- trate (ND <sub>3</sub> )	COLTON	13.5	0.21	29.0	47.7	43.4	34.3	14.0	1.24	123.2	73.0	26.0	47.0	
	edn	Chio- ride (Ci)	AT	1.78	1.27	35	2.14	2.59	2.12	2.14	1.64	59	1.38	1.83	2,00	
	č.	Sul - fate (SO <sub>4</sub> )	CREEK	153	1.32	1.23	1.43	1.43	1,22	63	1,26	1.35	1.56	1.71	1.55	
	constituents	Bicar – bonate (HCO <sub>3</sub> )	WARM	269 4.41	296 4.86	3.39	279 4.57	231	253 4.24	251 4.11	211 3.46	3.09	3.45	1 5th	3.88	
	Mineral con	Carbon- ote (CO <sub>3</sub> )		0000	0 0	00.00	00.00	0000	00.00	0000	0000	0.00	0000	0.00	0000	
	Min	Potas- srum (K)		13.0	0.28	10.8	15.4	0.39	12. 0.33	12.4 0.32	13.0	13.8	14.2	15	14.2 0.36	
		Sodium (Na)		3.28	2.39	1.87	132	105	3.74	3.83	3.70	3.18	2.83	3.70	3.4	
		Magne- s.um (Mg)		12	13	1.40	1.40	13	13	1.23	20	114	14	16	16	
		Calcium (Ca)		2.15 2.15	2.99	2.54	8/8	2.45	2.48 2.49	2 Fg	30,5	2.69	2.94	52 2.59	58 2.89	
		* 4		7.4	7.1	7.3	7.4	7.4	7.1	7.3	7.0	7.2	7.2	7.2	7.4	-
	Specific	(micrombas at 25°C)		803	418	649	912	953	839	842	841	7##	756	912	921	
				7.1			33	22	23	33	25					
		Dissolved osygen ppm %So		1.4			3.0	2.0	1.9	3.0	2.0					
				19	8	59	89	89	78	8	&	914	71		70	
		Discnorge Temp		50	13	29	6•9	2.0	7.6		10.1	96-92				
		Dote ond time sompled	1957	1/11	2/9	3/10	14/8	5/7	0800	7/11	8/9 0830	9/7	10/13	11/4	12/10	
ı										-						

ο Iron (Fe), oluminum (AI), oreenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as 20 except as ehown. b Determined by addition of analyzed constituents.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Colif. Dept of Public Health, Division of Laboratories.

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SANTA ANA REGION

	Anolyzed by e		DWR	DWR	DWR	DWR	DWR	DWR		·			DWR				
	Hordness bid - Coliform os CoCDs ITY MPN/mi											Median 2300		Min.	23		
1	- bid - bid - bid - bid		CCH	800	9009	<b>r</b>	7	2					1500			 	
	Hordness os CoCD <sub>3</sub> Totol N C ppm	<u> </u>	185	216	194	315	EK.	317					32 146				-
-	sod -		21	50	138	17	18	15			<u>_</u>		33			 	1
1010	solved solved solids in ppm		296	383	298	428	453	1445					307			 	
	Other constituents		25 NH <sub>1</sub> , 0.0 0.00	NH 0.00	NH <sub>1</sub> 0.0	NH, 0.0	00°0 HN	20 NH <sub>40.00</sub>					NH <sub>4</sub> 0,5				
	(S) (S)	<u> </u>		21	e	77	21 15						9			 	$\dashv$
ports per million equivolents per million	9- Boron (B)	(ste 500	7 0.15	1.2 0.02	0.5	4 0.05	0.50.08	4 0.00					0.4 0.10			 	-
ports per million volents per mit	Flug- ride (F)	(S	3.5 0.7	1017		0.02	0 0	3.0 0.4 0 0.05 0.02					77				-
orts p	rose (NO <sub>9</sub> )	OINO	0.0	2.5	2.1	0.11	2.2	0.0					8.7 0.41				
vine	Chlo- ride (CI)	BERNARDINO	0.42	0.42	14	24 0.68	24	0.59					0.59				
č	Sul - fote (SO <sub>4</sub> )	AT SAN	F. 5	1.43	1.07	2.07	2.11	20 1.88			_		62 I.30				
constituents	Bicor- bonote (HCD <sub>3</sub> )		204 3-34	3.56	3.26	301	292 4.79	306					2.35 2.35				
Mineral cor	Corbon-	WARM GREEK	0000	0.00	0.00	0.00	0.00	0000				<u> </u>	00.0			 	
×	Potos- sium (K)		7.2	0.10	6.6	4.8	4.8	4.2 0.11					62				
	Sodium (No)		22 0.96	25	20 0.87	8 E	ال الربي	25					1.33 1.33				
	Magne- sum (Mg)		0.99	15	114	1.81	1.73	1.73					13				
	pH * Colcium		54	3.09	25	4.54	8F.	92					7 1.3 1.85 1.07				
	# # 44		7.0	0,0	7.3	7.5	7-7	7.5					7.1				
2000	conductone (micromhos of 25°C)		154	520	187	730	969	658					433				
	gen %Sot		₽			63	99	77									
	Dissolved oxygen ppm %So		1 1 1			0°9 †19	6.2	6.9									
	Temp o of		52	63	58	ή9	119	70					50				
	Dischorge Temp in cfs in aF		ast 4	est 2	•st 6	1	1 2 2	est 1	dry	dry	dry	dry	est 1	dry			
	Dote ond time sompled	1957	1/11	2/9	3/10	0060	5/7	0060	July	Aug.	Septe	Oct.	11/4	Dec.			

o Iron (Fe), oluminum (AI), areenic (Ae), copper (Cu), lead (Pb), monganese (Mn), zinc (Zn), and chramium (Cr), reported here of  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

c Grovimetric determination.

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SURFACE WATER

f Field pH except when noted with #

ANALYSES OF SURFACE WATER SAN DIEGO REGION

	Anolyzed by e		DWR	D'4R	DWR	DWR	D #R	DWR	DWR	DWR	DWR	DWR	DWR	DWR
	MPN/mi											Median 230	Маж. 2400	Kin.
	o - bid - ty - mad u		2	5	50	5	R.	R	23	-5-	5	5	9 21	5
	CD3 N C													1
	[ ]		365	433	<b>424</b>	Ιηη	415	385	392	369	364 140	368	221	376
	sod -		19	8	58	69	\$	61	19	63	62	63	61	09
Totol	Solved solids in ppm						1375				1259			
	Other constituents						æ				PO 30.8			
	(Silico (SiO <sub>2</sub> )	63)					<b>N</b>				2			
on sillion	Boron (B)	(Ste	型 0	0.64	0.55	0.63	0.72	0.69	0.16	0.51	19.	0.71	0.35	0.59
per million	Fluo- ride (F)	(H)					0.0				0.03			
151	_	Y GROVE					33.0 0.8				7.7			
ports p	Chio- ride (CI)	R HARYONY	288	346	316	346	339	336	353	333	318	330	173	8.23
5	Sul - fate (50 <sub>4</sub> )	NEAR					335		_		317		_	
constituents	Bicor- bonota (HCO <sub>3</sub> )	CREEK	281	291 4.77	264 4.33	351	288	268 4-39	289	285 4.67	273	1777	159	265
Mineral cons	Carbon- ote (CO <sub>3</sub> )	ESCONDIDO	0000	00.00	0000	00.00	00.00	0000	0.23	00.00	0.00	00.00	0000	0000
2	Potas- sium (K)	<u> </u>					17				0.47			
	Sodium (Na)						304				281			
	Mogne- srum (Mg)						3.95				3.29			
	Colcium (Ca)						4.34				3.99			
	E .		7.7	7.6	6.8	8.1	7.2	7.1	7.3	7.3	7-3	7.2	6.9	7.2
0.000	conductonce (micromhos at 25°C)		1894	2247	2079	2242	1866	1988	2155	2024	1897	2012	1218	2037
			36	55	94	100	<b>F</b>	32	24	38	21	017	31	±€
	Dissolved oxygen ppm %Sol		0-11	0.9	4.5	0.6	Th 0°1	3.0	2.2	3.4	2.0	h.0	3.2	ō ±
	Tenp in of		52	54	63	2	63	99	68	70	49	61	57	911
	Discharge Temp in cfs in PF		Ponded	pepuod	Ponded	Ponded	Ponded	Ponded	0.05	0.25	0.33	.05	est.05	est .50
	Date and time sampled	1957	17/1300	2/7 1610	3/4 1330	<sup>1</sup> 4/8 1530	5/6 1040	6/10	7/1	8/12 1 <sup>4</sup> 00	9/3	1/01	11/4	12/2

o iron (Fe), oluminum (AI), orsenic (As), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here os 000 except as shown. b Determined by addition of analyzed constituents

c Gravimetric determination,

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SAN DIEGO REGION

	Analyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DWR
7	bid - Coliform of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the population of the populati						-5 Median 5600	175 %x. 240,000	500 500
1 D	- piq -		1400	50	25	7		175	<u> </u>
	N CO					2147			
			333	η£η	151	ξ <sup>†</sup> η13	CO1	396	3,0
	s sad -		95	09	53	56	19	59	8
Tota	salved salved in ppm		1180			1310			
	Other canstituents					PO1 2.20			
	Silica (SiO <sub>2</sub> )	658)	100		~I	20		0.	
illion	Baran (B)	(Sta	1,03	0.50	0.68	0.24	0.87	0.70	19°0
million per million	Fluo- ride (F)	RAAD	0.03			0.0			
ا اة	Ni- trate (NO <sub>3</sub> )	GCRGE R	28			23.4 0.38			
parts p	Chla- ride (CI)	SSION GO	338	12,41	448 12.63	365 2	375	326	8.80 8.80
<u>c</u>	Sul – fate (SO <sub>4</sub> )	AT M	269			337		·	
constituents	Bicar- banate (HCO <sub>3</sub> )	CREEK	17th 2.85 5	223	223	3.91	298	3.88	2.47
	Carban - B ate (CO <sub>3</sub> )			00.00	0000	0000	0000	0000	00.00
Mineral	Patas- Ca sium (K)	FORESTER	0.49	10	10	17.1			
	Sodium Pa		224			11.75		-	
			3.29			3.86 11			
	Magne- sum (Mg)								
	Calcium (Ca)		4.39		-	1000			
	H H		7.2	8.1	7.4	7.5	7.3	7.3	7-3
Specific	canductance (micramhas at 25°C)		1718	2342	2293	2088	2257	1898	1934
			22	117	17	73	<del>-</del>	95	50
	Oissalved axygen ppm 9/65a		5.2	8.7	1.4	5.7	14.0	0.6	0.00
	Te m		68	88	79	84	89	63	0 61
	Discharge Temp		est 2	0.5	0.5	0.5	0.5	est 5	est • 50
	Date and time sampled	1957	6/10 1825	1/1	8/12 1710	9/3 1 <sup>400</sup>	10/7	11/4	1820

OG OOO GECHD b refermined by addition of anolyzed constituents.

c Grovimetric determination.

d Annual median and range, respectively. Calculated from analyses of duplicate manthy samples made by Calif. Dept of Public Health, Division of Laboratories.

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f Field pH except when noted with e

SAN DIEGO REGION

	Analyzed by e		DWR	DWR	DWR	DWR	DWR	DWR	DVR	D.A.R	DWR	DVAR	DWR	DWR
	bid - Caliform											Median 96	Мах. 2400	M17.
1	- bid - bid maa u		6	55	8	185	7	0,	α:	9	200	3	10	5
	N COS										610			
	1		853	589	492	737	734	657	741	910	877	प्रथम	963	099
- 3	E pos		8 <del>1</del>	52	₹5	51	52	53	52	77	55	56	53	54
Tatol	solved solved in ppm			1728			2220				2779			
	Other constituents						ď				PO40.56			
	Silico (SiO <sub>2</sub> )	(Sta 65)					7				25			
noillion	Boron (B)	(Sta	D-27	0°43	о. 11	0.38	0-51	η <b>ή</b> ο	0.31	74.0	0.02	0.55	0.42	0.51
per million	Flua- ride (F)						0.0				0.02			
16	rote (NO <sub>S</sub> )	DAM		45			0.7				8.3			
ports p	Chio- ride (CI)	MISSION	844	506	11.51	20.02	695 09.61	19.04	760 21.43	338	1010	1050	1060	642 18.10
Ē	Sul - fate (SO <sub>4</sub> )	OLD		314 6.54		•	285				278 5.79			
constituents	Broar S banate (HCO <sub>3</sub> )	RIVER AT	276 4.52	3.56	3.56	279 4.57	296	317	367	353	5.33	1463	533 8.74	3.97
Mineral cons	Carban- ate (CO <sub>3</sub> )	TEGO R	0000	0000	0000	00.00	0000	0000	0000	0000	000	000	0000	00.0
Min	Potos- sium (K)	SAN		10.5			6.7				2.1			
	Sodium (No)			69 291 5.67 12.66			364 15.83				492			
	Magne- sium (Mg)			62.6			7.32				9.86			
				122 6.09			7.34				7.68			
-	Calcium (Ca)		9		<u></u>	7	8.1 7.	7.6	7.7	7.8	8.4	7.6	7.3	φ
	Ho S (C)		3 7.6	7 7.8	7 7-3	5 7.7								
Specif	canductonce (micramhos of 25°C)		3413	2557	21 37	3095	3095	2631	3205	3759	3802	11032	14098	2950
	Dissolved asygen ppm %Sat		99	83	20	7.0 78	138	†6 †1	5 212	14.6 192	27.0 354	5 75	5 65	88
			7.0	8.6	4.5		73 12.0	ф°8	84 16.5	14.		9.9	6.5	50 10.0
	Te and and and and and and and and and and		95	55	69	2		70		98	87	1 71	19	
	Discharge Temp in cfs in aF		pended		-	Triokle to pond	Ponded	Ponded	Ponded	Ponded	ponded	ponded	Ponded	Ponded
	Dote and time sampled	1957	1/7	2/7 1850	3/4	1830	5/6	6/10	7/1	8/12 1645	9/3	10/7	11/4	12/2 1800

a Iran (Fa), aluminum (AI), oreanic (Aa), capper (Cu), lead (Pb), mangonese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

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ANALYSES OF SURFACE WATER

ANALYSES OF SURFACE WATER TABLE

SAN DIEGO REGION

	Analyzed by a															
-	P i														 	
	Coliform d MPN/mi															
	Tur- bid- thy In ppn															
	PP CO3															 
	1 1															 
-	tum sod –														 	 
,	solved solved in ppm														 	
	Other constituents															
	Silica (SiD <sub>2</sub> )	(49														
	5 1	(Sta														
parts per million	Fluo-Bord	LEY														
151	1	L VAI														
la l	Chlo- ride trate (Cl) (NO <sub>3</sub> )	N PASQUAL VALLEY														
Ē	Sul - fate (SO <sub>4</sub> )	OW SAN														
constituents	Bicar – bonate (HCO <sub>3</sub> )	R BELOW			···											
of cons	Carbon - B	O RIVER	· · ·		-											 
Mineral	Potas- Co	IEGUI TO					-								 	
	Sodium (No)	SAN DI						_								
	Magne- sium (Mg)														 	 
	Calcium (Ca)															 
	E .															 
	Specific conductance (micromhas at 25°C)															
	yen %Sal															
	Temp in of										.,					
	Discharge Temp in cts in 9F		dry	dry	dry	ţ,	dry	dry	dry	dry	dry	dry	dry	dry		
	Date and time sampled	1957	177	2/7	3/4 1430	1635	May	June	July	Sny	9/3	100	Nov	Dec		
_		L	-												 	

o Iran (Fe), aluminum (AI), oreanic (As), capper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reparted here as  $\frac{0.0}{0.00}$  except as shown. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annual median and range, respectively. Calculated fram analyses of duplicate marthly samples made by Calif. Dept. of Public Health, Division of Laboratories.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Cansultant (PCC), Metrapalitan Water District (MWD), Las Angeles Dept. of Water & Pawer (LADWP), City of Lae Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated f Field pH except when noted with a

Water & Power (I ADWP), City of Los Angeles Dept of Pub Health (LADPH).

SAN DIEGO REGION

		D U			~	~	~	~	~	~	œ	-			~	~
		Anolyzed by e			DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR			DWR	DWR
		bid - Coliform												Medien 18	Mex.	Min. 0.45
	10	- P. E. G. G.			3	-5	-5	5	5	-5	4	5			2	7
		N CON	E dd						011							
		Hordness os CoCO <sub>3</sub> Totol N C	Egg		218	272	260	247	246	248	244	250			256	245
L	Per-	Sod -	$\perp$		28	<b>5</b> 8	29	23	28	28	28	28			28	28
	200	solved solids in ppm	0						455							
		Other constituents							ď							
		Silico (SiO <sub>2</sub> )							3							
	lion	Boron (B)		(Sta 62)	0.0	0.06	70.0	8	है।	0.05	50	0000			8	00.00
Dillio.	Ē	Fluo- ride (F)		(St					0.2			-				
ports per million	equivolents per million	trote (NO.)	$\rightarrow$	PALA					0.01							-
od ci s	00000	Chio- ride (Ci)		LUIS REY RIVER NEAR PALA	1.30	1.47	1.38	1.27	1.27	1.27	1.24	1.30			1.47	1.24
ءِ		Sul - fote (SO <sub>e</sub> )		RIV					2.41							
constituents	-	Bicor- bonofe (HCO <sub>4</sub> )	- 1	IS RE	157	172	2.7	17t	166	2.83	2.85	2.79			2.93	178
- 1	- 1	Corbon - B		SAN LU	000	0000	0000	0000	0000	0 0	0.00	0000			000	000
Mineral	-	Potos- Co Srum (X)							5.0							
	-	Sodium (No)	+						2.00 2.00						· · · · · · · · · · · · · · · · · · ·	
	ŀ	Mogne- Sium (Mg)							1.73	-						
		Colcium M							3.19							
H		1 <b>4</b>			7.9	7.2	7-1	7.3	7.3	7.3	7.1	7.5			7.3	7.2
	peculic	(micromhos of 25°C)				762 7	7445	η69	999	699	* 489	673			734	h69
		- 0			9	49	72	09	-	70	7	93			17	73
		Dissolved oxygen			5.0	8.9	7.0	5.8		7.0	7.0	8.2			7.2	7.6
					- 58	59	62	63	62	19	-25	72			59	57
		Dischorge Temp in cfs in 9F				1 •• t	1	1 est	1 .et	1	0.05	pepuod	dry	dry	• 02	0.04 • st
		ond time sompled		1957	1,7	2/7	3/4	1430	5/6 9945	6/10	7/1 0930	8/12	9/3 9945	10/7 1445	11/4	12/3

. o Iron (Fe), oluminum (AI), oreenic (Ae), copper (Cu), lead (Pb), manganese (Mn), zinc (Zn), and chromium (Cr), reported here as  $\frac{90}{2000}$  except as shown.

b Determined by addition of analyzed constituents.

c Grovimetric determination.

d Annual median and range, respectively Calculated from analyses of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborates.

• Mineral analyses made by USGS, Quality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metropolitan Water District (MWD), Los Angeles Dept. of Water Branch (LADMP), City of Las Angeles Dept. of State Department of Water Resources (DWR), as indicated

f Field pH except when noted with a

ANALYSES OF SURFACE WATER TABLE B-18

		Anolyzed by 8		DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR	DWR
		MPN/mi	. ,					•					10 Median 12.5	Max. 2400	Min. 2.3
	1	- bid - ty mgg u		-5	-5	50	7	15	7	7	15	9	10	\$	-5
		Hardness as CoCO <sub>3</sub> Totol N C ppm ppm						%			===	0			
				315	338	305	348	34	361	336	\$	310	239	323	348
-	ď	Sod -		51	647	20	47	\$	917	9	20	9	89	6+	5
	Tota	solved solved in pom				<u>-</u>		780	<u> </u>			951			
		Other constituents	516)					30				5 PO <sub>tt</sub> 0.52 a			
	1	on Silico (SiO <sub>2</sub> )	(Sta 5	21	И	<u>برا</u>	នា		<u></u>	80	2	의 원	위	zi.	21
	per million	o- Boron (B)	<u> </u>	0.20	72.0	0.25	0.23	4 0.28	0-33	0.28	0.22	10°40	0.40	0.21	0.10
	ษ	Fluo- ride (F)	K OK					1 0.02				7 0.4 4 0.02		<u> </u>	
	equivolents	rrate (ND <sub>3</sub> )	HTTH.					0.01	_			2.7			
REGION	equiv	Chlo- ride (Cl)	R NEAR FRLLEHOOK	172 5.05	171	156	162	163	170	180	21 <sup>4</sup> 6.03	260	7.73	158	148
DIEGO	ë	Sul - fote (SO <sub>4</sub> )	RIVER					116				2.32			
SAN DI	constituents	Bicar – bonate (HCD <sub>3</sub> )	GARITA	361	318 5.21	1,90	364	27.5	1011 1011	103 6.64	8.11	392	346	329	341
	Minarol cor	Carbon- ote (CO <sub>3</sub> )	SANTA MARGARITA	10	00.00	00.00	0000	00.00	0.00	0.33	00.00	00.00	0000	0000	000
	ž	Potos- sium (K)	SAN					3.7				4.8 0.12			
		Sodium (DN)						147				224			
		Magne- S						2.38				3.21			
		M mui						4.49	·			2.99 3.			
-		Coleium (Ca)		7.5	# 80	7.8	7.7	7.7	7.8	7.5	7-1	8.0	8.5	7.9	7.8
-	٥	PH S CC													
	2000	conductonce (micromhas at 25°C)		1314	1329	1228	1291	1226	1309	1366	1531	1592	1502	1255	1/21
				62	92	84	70	85	82	62	93	100	195	11	72
		Dissalved oxygen ppm %S		7.0	10.4	8.5	7.0	8 5	7.8	5.7	8.0	9.0	17.2	8.0	<b>1</b>
		Te n o F		50	50	59	61	61	75	89	75	69	17	87	82
		Discharge Temp in cfs in 9F		Trickle	est 7	18	-	**************************************		0.05	popuded	perued	ported		1.6
		Dote and time sampled	1957	1/7	2/7	3/4 1115	4/8 1300	5/6 0850	6/10 1345	7/1 0845	8/12	9/3 0845	1230	11/4	12/2

o iron (Fe), aluminum (AI), arsenic (As), copper (Cu), lead (Pb), mongonese (Mn), zinc (Za), and chromium (Cr), reported here as and except as ehawn. b Determined by addition of analyzed constituents.

c Gravimetric determination.

d Annuol median and range, respectively. Calculated from analysee of duplicate monthly samples made by Calif. Dept of Public Health, Division of Laborateries.

Mineral analyses made by USGS, Duality of Water Branch (USGS), Pacific Chemical Consultant (PCC), Metrapolitan Water District (MWD), Las Angelee Dept. of Water & Power (LADWP), City of Loe Angeles Dept. of Pub Health (LBDPH) or State Department of Water Resources (DWR), as indicated

f Field pH except when nated with a

On Angeles Dept of Woter & Power (LADWP), City of Los Angeles Dept of Pub Health (LADPH),

SAN DIEGO REGION

		Anolyzed by e			DWR										DWR		
	,	bid - Coliform d												Median 155,000	Mex. 700,000	Min. 70,000	
	Ĭ.r.	- pid - pid - pid - pid			\$000										2500		
		000	N E														
			Totol		152										127		
-	0	S sod -	E		3										19		 
	Toto	solved solids	ř g		533												 
		Other constituents															
		Sirco	12000	(99	20												
	llion	Boran	ĝ	(Ste	0.18										0.15		
11.00	Der 3	Fluo-	(F)	ARY	0.0												
and the man and	enfs	-iort	(NO3)	BOUNDARY	0.01							-					
18	equivolents per million	Chio-		INTERNATIONAL	161										3.19		
	ĕ	Sul -	(80%)	TERN	176.												
	tuents	Bicor - S		AT IN	3.21 1.07		<u> </u>								136		
	Mineral constituents	- ug	E)		18										0.00		 
	ineral	- Corbon-	00)	ANA R											~ o		 
	2	Potas-	ŝ	TIA JUANA RIVER	13.2												
		Sodium		i⊢l	123												
		Mogne- sium	(Mg)		1.73											·	
		Colcium	(12)		26												
-		ī	٠l		8.3										7.8		
	20110	(micromhos			935										715		
-			304		39										7 94		
		Dissolved	ppm %Sot		0° 4										ц.2		
-			d d		-η 28 μ										14 89		
-		Dischorge Temp				>	>	. 8	>	<b>P</b> 2	7	h	<b>₽</b>	<u>&gt;</u>		h	
		Discho In ct			δ. <u>*</u>	dry	dry	dry	dry	dry	dry	dry	dry	dry		dry	
		Date and time sampled		1957	1/7	2/7	3/4	1745	May	June	July	Aug	9/3	Oot	11/4	Dea	

o fron (Fa), oluminum (A1), oreanic (Aa), copper (Cu), lead (Pb), mongonese (Mn), zinc (Zn), and chromlum (Gr), reported here as  $\frac{QD}{\Delta DD}$  except as shown. b Determined by addition of analyzed constituents.

Grovimetric determination.

d Annual median and range, respectively. Colculated from analyses of duplicate monthly samples made by Colf. Dept of Public Health, Division of Labardes.

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f Field pH except when noted with a



RADIOASSAY OF SURFACE WATERS

NORTH COASTAL REGION (NO.1)

1					Micro-mic	Micro-micro curies per liter	
S S	Stream	Near	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
₩.	Eel River	McCann	5-7 9-11	45.1 ± 12.0	00	00	00
9	Eel River	Scotia	5-7 9-11	00	CO	00	0.52 ± 0.38
7	Eel River, South Fork	Miranda	5-7 9-11	00	00	0 0.31 ± 0.45	00
ч	Klamath River	Copco	5-7 9-18	00	co	CO	0 - 52 + 0.38
6	Klamath River	Klamath	5-9 9-11	00	00	CC	CC
~	Klamath River	Somesbar	5-10 9-12	00	00	CC	0 0.72 ± 0.51
10	Russian River	Guerneville	5-6 9-10	00	oc	CO	CC
6	Russian River	Healdsburg	5-6 9-10	00	0 0 6.10 ± 5.4	CO	00
<b>ø</b> ⊗	Russian River	Hopland	5-6 9-10	CO	0 6.66 ± 5.4	00	00
10b	Russien River	Ukiah	5-6 9-10	00	0 17.97 ± 6.6	00	00
₩	Russian River, East Fork	Calpella	5-6 9-10	00	8.86 + 5.8	CC	1.15 ± 0.64
10a	Russian River, East Fork	Potter Valley <b>Power</b> house	5-6 9-10	00	5.63 ± 5.4	00	0 0.32 + 0.29

TABLE B-19

RADIOASSAY OF SURFACE WATERS

NORTH COASTAL REGION (NO. 1)

	Solid Alpha	00	0 + 67-0	
Micro-micro curies per liter	Dissolved Alpha		00	00
Micro-mic	Solid Beta	00	00	00
	Dissalved Beta	00	00	00
Date	1957	5-8 9-11	5-10 9-12	5-14 9-11
Near		Crescent City	Ноора	Lewiston
Stream		Smith River	Trinity River	Trinity River
Sta.	.00	За	4	877

## RADIOASSAY OF SURFACE WATERS

SAN FRANCISCO BAY REGION (NO. 2)

					Micro-mi(	Micro-micro curies per lifer	
Sta.	Stream	Near	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
73	Alameda Creek	Niles	5-16 9-12	00	12.4 + 6.6	00	00
82	Coyote Creek	Madrone	5-16	14.9 + 9.6	00	00	8.2 + 0.61 0.52 + 0.48
477	Los Gatos Creek	Los Gatos	5-16 9-12	12.1 + 10.0	18.2 ± 6.8	CO	00
72	Napa River	Saint Helena	5-14	8.78 + 5.6	00	00	CC



RADIOASSAY OF SURFACE WATERS

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COASTAL
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					Micro-mic	Micro-micro curies per liter	
Ş Ş Ş	Stream	Near	Date 1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
83	Carmel River	Carmel	5-15 9-12	00	00	00	00
77	Pajaro River	Chittenden	5-15	00	6.73 ± 6.6 5.63 ± 5.1	00	00
438	Salinas River	Paso Robles	5-7 Sept.	0 Dry	7.80 ± 6.8	С	С
75	San Lorenzo River	Big Tree (nr Felton)	5-15 9-12	ОС	7.32 ± 6.8 5.93 ± 5.2	СС	5.0 + 6.0
45	Santa Yn <b>ez</b> River	Los Laureles Canyon	5-8 Sept.	13.2 <u>+</u> 11.8 Dry	7.72 ± 6.7	С	0
458	Santa Ynez River	Solvang	5-8 Sept.	0 Dry	7.55 ± 6.8	0	0
76	Soquel Creek	Soquel	5-14	00	0 6.28 ± 5.2	00	0.4 + 0.3
96	Uvas Creek	Morgan Hill	5-16	C	0	C	0

## RADIOASSAY OF SURFACE WATERS

LOS ANGELES REGION (NO. 4)

		2	-		Micro-mic	Micro-micro curies per liter	
Sta. No.	Stream	Near	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
148	Los Angeles River	Long Beach	5-24 9-19	0 12.20 ± 6.1	7.60 ± 7.5	00	0.6 + 0.5
177	Los Angeles River	Los Angeles	5-24 9-19	00	00	00	0.7 + 0.5
75p	Matilija Creek	Matilija Dam	5-8	00	00		00
<b>49</b> а	Mission Creek	Whittier Narrows	5-7	9.84 + 5.7	0 8.06 ± 6.1	00	00
16c	Piru Creek	Piru	9-3	14.58 ± 5.8	0	0.83 + 0.69	0
149	Rio Hondo River	Whittier Narrows	5-7	9.84 ± 5.7	8.06 ± 6.1	00	1.3 + 0.7
50d	San Gabriel River	Azusa Powerhouse	7-6	7.00 ± 5.0	0	0	0
20	San Gabriel River	Whittier Narrows	5-7	0 Dry	0	0	0
1917	Santa Clara River	Blue Cut	5-6	8.81 + 5.6	00	00	00
971	Santa Clara River	LA-Ventura Co. Line	5-6	7.74 + 5.7	00	00	00
116a	Santa Clara River	Santa Paula	5-6	6.50 + 5.7	00	0.5 + 0.5	00 (
116е	Santa <b>Pau</b> la Creek	Santa Paula	9-3	0	0	0	O (
19 19	Sespe Creek Ventura River	Fillmore Ventura	9-3	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 00	0 00	9.0 + 9.0 D

B-257

TABLE B-23

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (No. 5)

Sto		N	200		Micro-mic	Micro-micro curies per liter	
S O	Stredm	Nedr	Date	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
22	American River	Sacramento	5-9 9-23	00	7.89 ± 6.7 5.36 ± 5.3	00	00
78	Bear River	Wheatland	5-6 9-16	00	00	00	00
17c	Burney Creek	Burney	5-8 9-18	00	CO	CO	0.52 + 0.5
80	Cache Creek	Capay	5-10 9-10	00	0 6.58 ± 5.7	0.5 + 0.3	O C
75	Cache Creek	Lower Lake	5-14	00	CO	00	CO
46	Cache Creek, North Fork	Lower Lake	5-13 9-11	00	CC	CO	00
16a	Calaveras River	Jenny Lind	5-7 9-10	cc	7.1 + 6.4	O C	7.0 + 7.0
07	Clear Lake	Clear Oaks	5-13 9-11	00	00	CO	00
41	Clear Lake	Lakeport	5-14 9-11	00	CC	CC	CO
12b	Cottonwood Creek	Cottonwood	5-7	00	CO	CC	00
92	Delta-Mendota Canal	Mendota	5-13	5.86 + 5.8	0.9 + 78.9	OC	1.6 + 0.7

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)

Sto	Charles	- N	2		Micro-mic	Micro-micro curies per liter	
No.	Stream	Negr.	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
20	Feather River	Nicolaus	5-6 9-16	8.44 ± 5.1	00	00	00
19	Feather River	Oroville	5-7 9-16	OC	00	00	CC
17d	Indian Creek	Crescent Mills	5-9 9-19	00	00	00	0.5 + 0.4
35	Kaweah River	Three Rivers	5-14 9-25	00	CC	00	СС
36	Kern River	Bakersfield	5-14	12.1 + 10.0	13.2 + 9.8 8.40 ± 5.5	9.0 + 8.0	0.62 ± 0.53
36а	Kern River	Isabella Dam	5-13	14.1 ± 10.2	0 6.31 ± 5.5	0.80 ± 0.53	1.15 ± 0.56
36b	Kern River	Kernville	5-13	10.02 ± 5.7	0 0 7.10 ± 5.5	0.5 + 0.5	1.0 + 0.5
33c	Kings River	Below N. Fork	5-16	00	00	00	CO
34	Kings River	Peoples Weir	5-15 9-25	00	00	00	00
33b	Kings River	Pine Flat Dam	5-16 9-13	00	00	00	00
18	McCloud River	Shasta Lake	5-15 9-11	00	00	CC	00
32a	Merced River	Exchequer Dam	5-15	00	5.79 ± 5.1	00	o c
32	Merced River	Stevinson	5-15	CC	6.53 + 6.7	00	0 (
				TABLE B-23			

TABLE B-23

CENTRAL VALLEY REGION ( NO. 5)

240	2				Micro-mic	Micro-micro curies per liter	
Š	Stream	Neg	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
238	Mokelumne River	Lancha Plana	5-7	00	10.5 + 6.5	CC	0 0.72±0.56
23	Mokelumne River	Woodb <b>r</b> idge	5-17	CC	14.7 + 6.7	CC	00
108	Old River	Orwood Bridge	86	С	9.13 ± 8.8	0	0
17a	Pit River	Canby	5-8 9-18	10.4 ± 9.8	00	7.0 + 9.0	7.0 + 7.0
17	Pit River	Montgomery Creek	5-15 9-11	00	CO	CC	0.62± 0.48
81	Putah Creek	Winters	5-10 9-10	00	CC	00	CC
109	Rock Slough	Knightsen	5-8	12.5 + 10.4	0	1.23 ± 0.7	0.4 ± 0.3
11	Sacramento River	Delta	5-14	00	co	CC	CC
13	Sacramento River	Hamilton City	5-7	00	5.93 ± 5.1	CO	СС
12	Sacramento River	Keswick	5-14 9-10	00	10.5 ± 6.6	CO	CC
7,4	Sacramento River	Knights Landing	5-13	CC	10.1 ± 6.6	0.31 ± 0.29	CC
12a	Sacramento River	Redding	5-16 9-10	00	CO	0.52 + 0.38	G ©

TABLE B-23

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (NO. 5)

5		2			Micro-mic	Micro-micro curies ber liter	
S o	Stream	Near	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
16	Sacramento River	Rio Vista	5-9 9-12	СО	00	00	co
15	Sacramento River	Sacramento	5-10	CC	5.69 ± 5.2	CO	oc
14a	Sacramento Slough	Knights Landing	5-13 9-10	00	00	00	00
28	San Joaquin River	Antioch	5-9 9-12	0 0 + 5.5	00	00	0 1.46 ± 0.72
25a	San Joaquin River	Dos Palos	5-13 9-24	0 21.21 ± 5.5	8.35 + 5.0	00	1.1 + 0.6 1.45 + 0.63
24	San Joaquin River	Friant	5-13 9-25	CC	14.1 + 7.0	CC	00
56	San Joaquin River	Grayson	5-16 9-27	11.0 + 7.0	00	0.52 ± 0.45	0.91 + 0.6 0.91 + 0.56
26a	San Joaquin River	Maze Road Bridge	5-16 9-27	7.61 ± 7.0 10.94 ± 5.5	CC	0.7 ± 0.5 0.52 ± 0.45	co
25	San Joaquin River	Mendota	5-13 9-24	0 7.53 ± 5.8	0 6.09 ± 5.2	00	CO
27	San Joaquin River	Vernalis	5-16 9-27	13.02 ± 5.6	00	0.5 + 0.4 0.52 + 0.45	00

TABLE B-23

RADIOASSAY OF SURFACE WATERS

CENTRAL VALLEY REGION (No. 5)

10	Sto	Ctroom	Neor	Date		MICTO-MIC	Micro-micro curies per lifer	Call Alaka
,	j o			1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
l	56	Stanislaus River	Mouth	5-17	08.22 ± 6.0	0 11.52 ± 5.4	00	0.6 + 0.5
	29a	Stanislaus River	Tulloch Dam	5-16 9-26	00	00	00	00
	13a	Stony Creek	Hamilton City	5-7	00	00	00	0 1.15±0.56
	31а	Tuolumne River	Below Don Pedro Dam	5-16 9-26	00	7.01 ± 5.1	00	0.64 0.5
	30	Tuolumne River	Hickman-Water- ford Bridge	5-16 9-26	7.86 + 6.7	00	00	00
B-2	31	Tuolumne River	Tuolumne City	5-16	0 4 66.7	CC	1.21 ± 0.63	00
63	21	Yuba River	Marysville	5-6 9-16	00	00	СС	00
	218	Yuba River	Smartsville	5-6 9-16	00	6.70 + 6.5	00	CO



LAHONTAN REGION (NO. 6)

Sta	2000	200	9		Micro-mic	Micro-micro curies per liter	
No.	Stredin		1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
39	Lake Tahoe	Bijou	5-9 9-20	6.36 ± 5.7	00	00	O C
38	Lake Tahoe	Tahce City	5-9 9-19	CO	CO	0.41 ± 0.39	0 0.52±0.45
37	Lake Tahoe	Tahoe Vista	5-9 9-20	00	0 0 11.59 ± 6.11	00	CC
67a	Mojave River	The Forks	7-6	8.98 + 5.9	С	С	0.52 ± 0.38
<i>L</i> 9	Mojave River	Victorville	5-9 9-4	0 0 9.70 + 5.9	CC	1.0 + 0.71	0 1.04 ± 0.64
17b	Susan River	Susanville	5-8 9-19	0 9.17 ± 5.7	CC	00	0 1.15 ± 0.62
53	Truckee River	Farad	5-9 9-19	8.85 + 5.9	00	00	0.71 ± 0.59
52	Truckee River	Truckee	5-9 9-19	8.21 ± 5.7	9.26 + 5.2	00	00

RADIOASSAY OF SURFACE WATERS

COLORADO RIVER BASIN ( NO. 7)

					N:		
Sta.	Stream	Near	Date 1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
09	Alamo River	Calipatria	5-7 9-4	0 13.81 ± 5.7	0 6.86 ± 5.8	CC	$1.5 \pm 0.7$
65	Alamo River	International Boundary	5-7	9.95 ± 5.6	00	00	9.0 + 0.0
56a	All American Canal	Pilot Knob	5-15 9-16	6.13 ± 5.7	0 0 + 7 9.0	00	0.41 + 0.33
56c	Colorado River	Blythe	5-15	0 9.11 ± 5.8	CC	0.8 + 0.6	СС
26b	Colorado River	Morelos Dam	5-15 9-16	9.25 + 5.8	00	СО	79°U + 16°U
55	Colorado River	Parker Dam	5-15	12.63 ± 5.9	00	CO	CC
27	Colorado River	Topock, Arizona	5-14	9.95 ± 59.9	СС	1.14 ± 0.62	00
95	Colorado River	Yuma, Arizona	5-15	10.35 ± 5.7	0 0 96 + 6.2	CC	CC
57	New River	Internl. Boundary	5-7	8.96 + 8.4	0.8 ± 6.7	co	0.72 ± 0.69
28	New River	Westmorland	5-7	7.30 ± 5.6	8.19 ± 5.9	00	1.2 + 0.6
68a	Salton Sea	State Park	7-6	7.10 ± 5.7	С	0	C
<b>q</b> 89	Whitewater	Месса	7-6	0	0	0.62 + 0.41	1.77 ± 0.86
99	Whitewater River	Whitewater	5-7	25.5 ± 11.4 16.82 ± 5.8	0.32 ± 5.7	0 0.72 + 0.62	1.2 + 0.7



TABLE B-26

SANTA ANA REGION (No. 8)

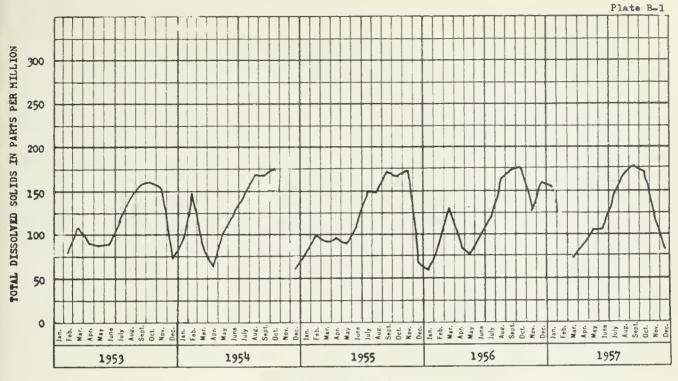
1								
	Sta.	Stream	Near	Date		Micro-mic	Micro-micro curies per liter	
1	No.			1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
	68	Lake Elsinore	North Shore	9-3	22.92 ± 6.4	50.58 + 8.1	С	0
	51b	Santa Ana	Mentone	5-7	27.9 ± 13.6 28.05 ± 6.0	00	2.06 ± 0.8 2.50 ± 0.84	00
	5le	Santa Ana River	Norco	2-4 6-4	СС	00	CC	0.9 + 0.7
	51a	Santa Ana River	Prado Dam	2-4 6-4	0 26.98 ± 7.0	CO	CO	0.62 ± 0.48
	51d	Santa Ana River	Riverside	4-6	14.3 ± 13.4 13.00 ± 5.7	9.9 + 7.0	0 0 4 72 + 0.64	СС
B-2	50b	Warm Creek	Colton	5-7	С	0	С	7°0 ∓ 5°0
69	50c	Warm Creek	San Bernardino	5-7	С	0	7°U + 5°U	2.4 + 1.0



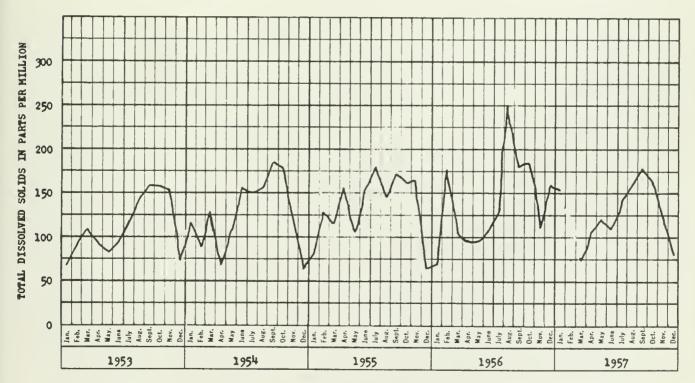
SAN DIEGO REGION (NO. 9)

3					Micro-mic	Micro-micro curies per liter	
So.	Stream	Near	1957	Dissolved Beta	Solid Beta	Dissolved Alpha	Solid Alpha
63	Escondido	Harmony Grove	5-6	0 10.49 ± 5.8	00	OC	o c
65a	Forester Creek	Mission Gorge Road	6-3	13.10 ± 5.8	0	С	C
65	San Diego River	Old Mission Dam	5-6	7.84 ± 5.4	00	СС	2.4 + 0.90 1.35 + 0.64
62	San Luis Rey River	Pala	9-9	19.9 ± 11.2	С	С	0.82 + 0.66
51c	Santa Margarita Fallbrook River	Fallbrook	5-6 9-3	00	00	00	0.70 + r.61 n.83 + n.59



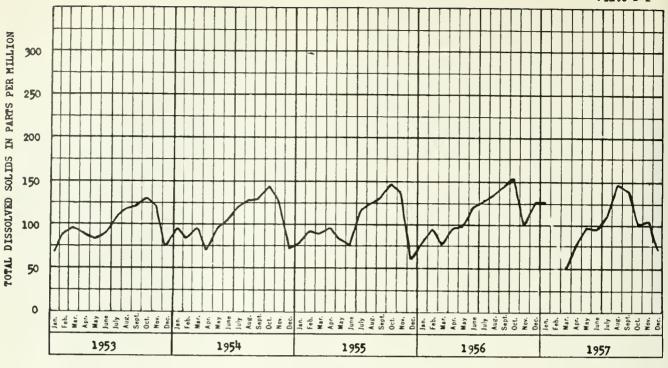


QUALITY CHARACTERISTICS OF EEL RIVER NEAR MCCANN (STATION 5)

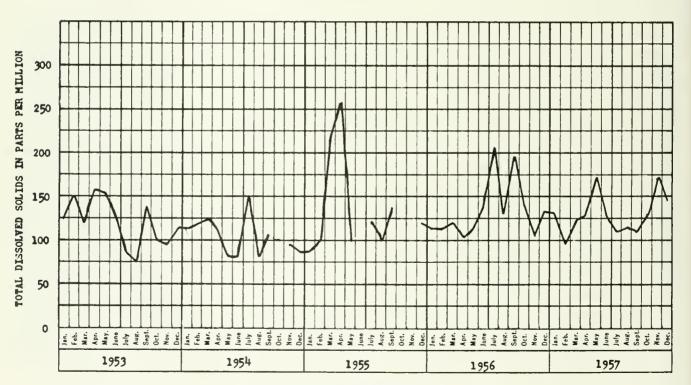


QUALITY CHARACTERISTICS OF EEL RIVER AT SCOTIA (STATION 6)



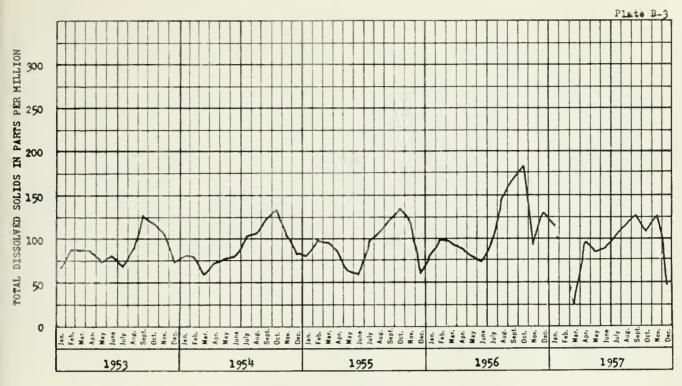


QUALITY CHARACTERISTICS OF EEL RIVER, SOUTH FORK, NEAR MIRANDA (STATION 7)

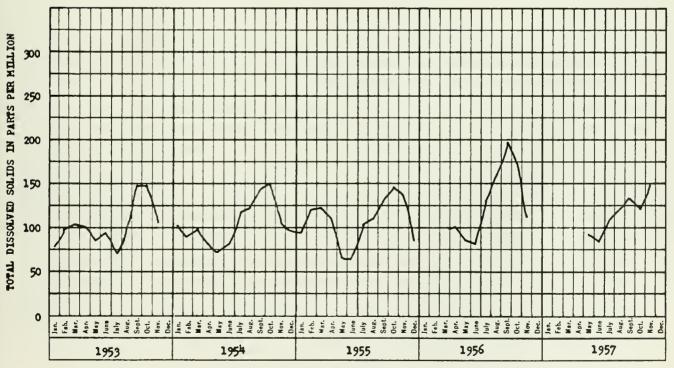


QUALITY CHARACTERISTICS

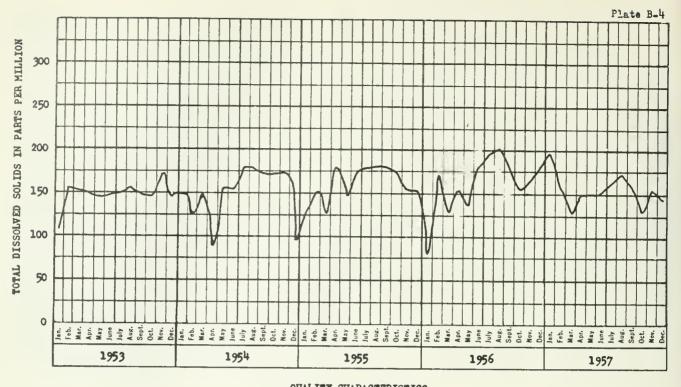
OF
KLAMATH RIVER NEAR COPCO
(STATION 1)



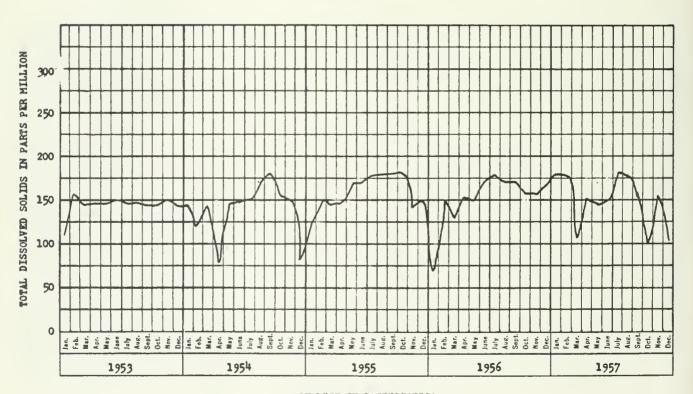
QUALITY CHARACTERISTICS OF KLAMATH RIVER NEAR KLAMATH (STATION 3)



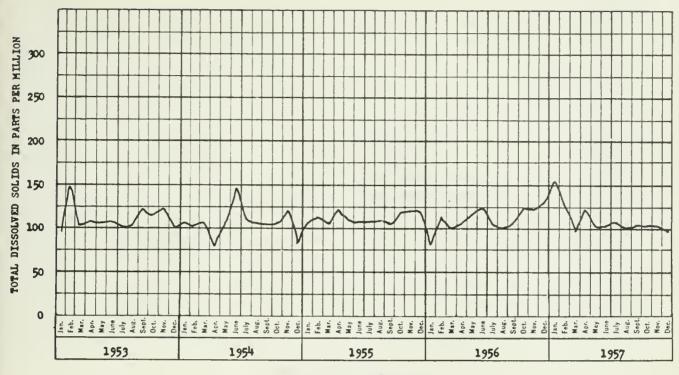
QUALITY CHARACTERISTICS OF KLAMATH RIVER AT SOMESBAR (STATION 2)



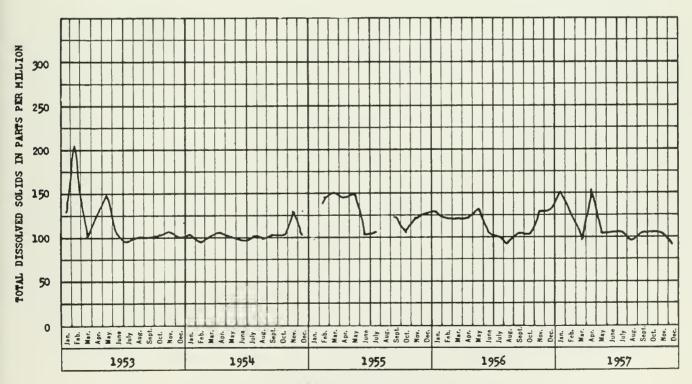
QUALITY CHARACTERISTICS OF RUSSIAN RIVER AT GUERNEVILLE (STATION 10)



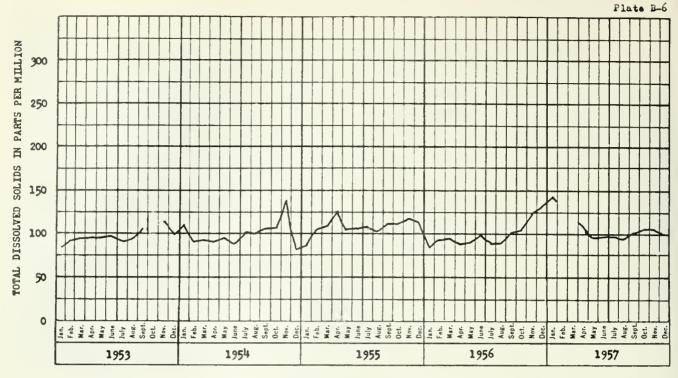
QUALITY CHARACTERISTICS OF RUSSIAN RIVER NEAR HEALDSBURG (STATION 9)



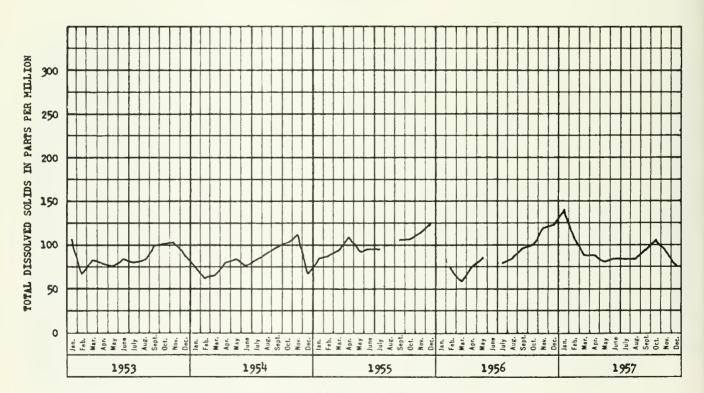
QUALITY CHARACTERISTICS OF RUSSIAN RIVER NEAR HOPLAND (STATION 8A)



QUALITY CHARACTERISTICS OF RUSSIAN RIVER NEAR UKIAH (STATION 10B)

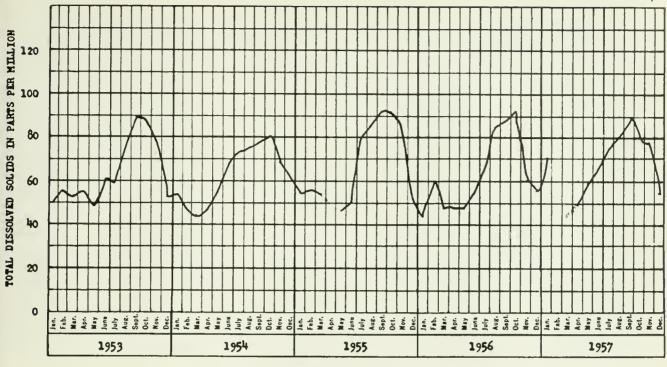


QUALITY CHARACTERISTICS
OF
RUSSIAN RIVER, EAST FORK, NEAR CALPELLA
(STATION 8)

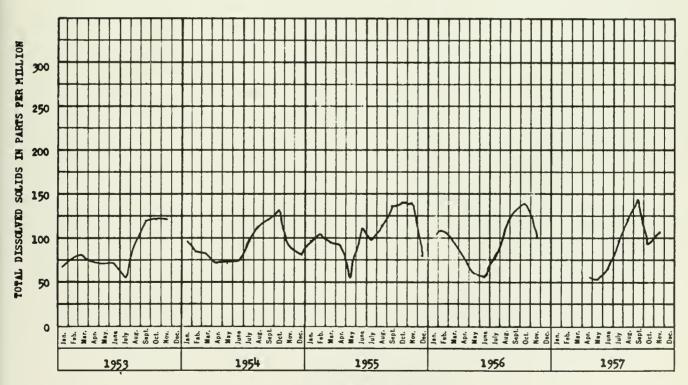


QUALITY CHARACTERISTICS
OF
RUSSIAN RIVER, EAST FORK, AT POTTER VALLEY POWERHOUSE
(STATION 10A)





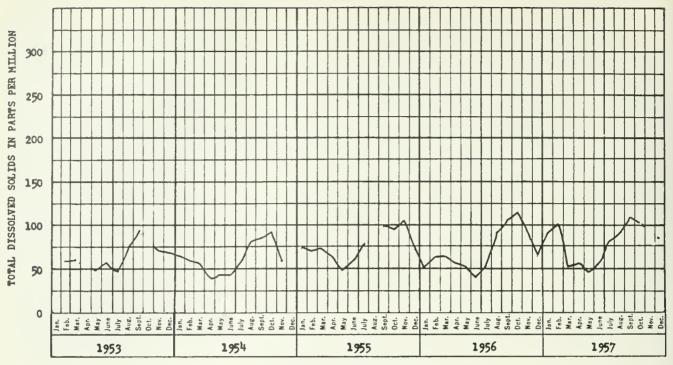
#### QUALITY CHARACTERISTICS OF SMITH RIVER NEAR CRESCENT CITY (STATION 3A)



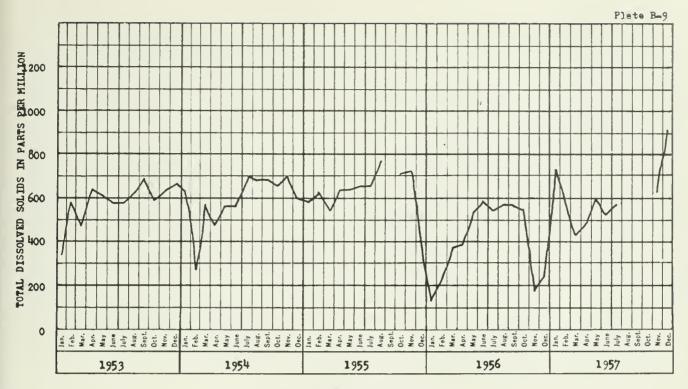
QUALITY CHARACTERISTICS OF TRINITY RIVER NEAR HOOPA (STATION 4)



TOTAL DISSOLVED SOLIDS IN PARTS PER MILILION

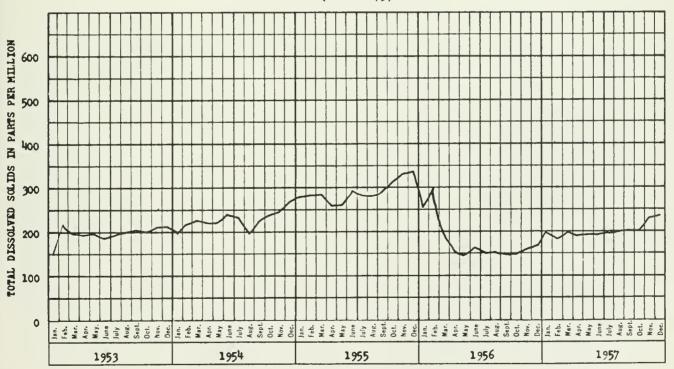


QUALITY CHARACTERISTICS
OF
TRINITY RIVER AT LEWISTON
(STATION 4A)



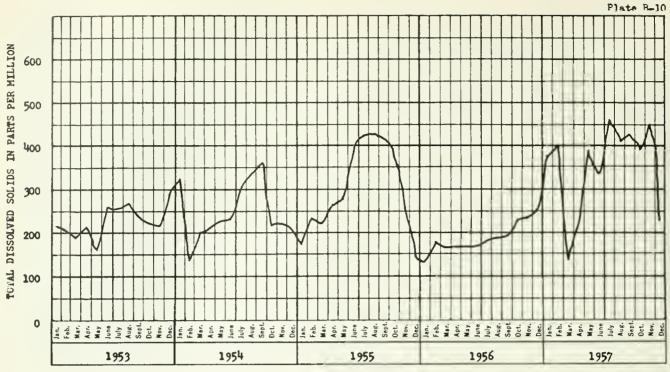
QUALITY CHARACTERISTICS OF ALAMEDA CREEK NEAR NILES

(STATION 73)

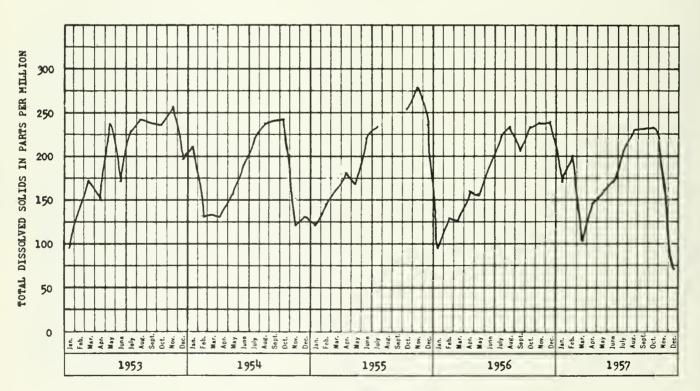


QUALITY CHARACTERISTICS OF COYOTE CREEK NEAR MADRONE (STATION 82)



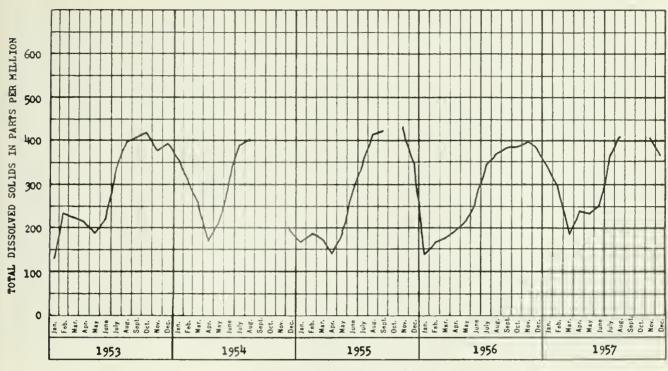


QUALITY CHARACTERISTICS OF LOS GATOS CREEK AT LOS GATOS (STATION 74)

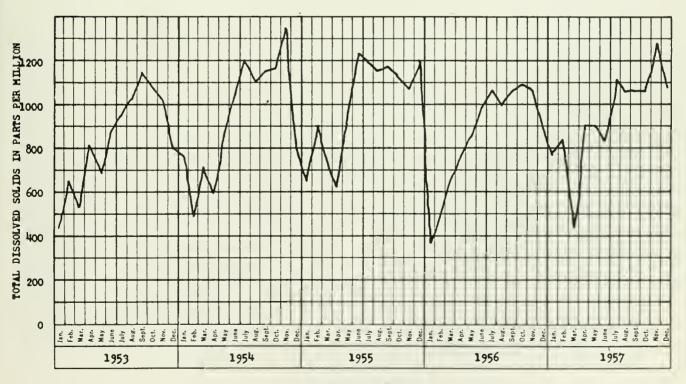


QUALITY CHARACTERISTICS
OF
NAPA RIVER NEAR ST. HELENA
(STATION 72)



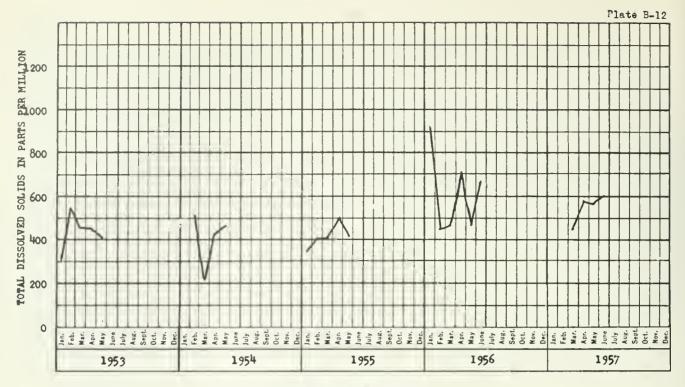


QUALITY CHARACTERISTICS OF CARMEL RIVER NEAR CARMEL (STATION 83)

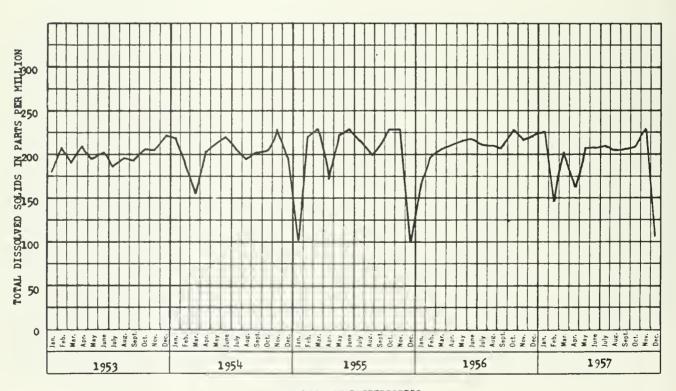


QUALITY CHARACTERISTICS
OF
PAJARO RIVER NEAR CHITTENDEN
(STATION 77)

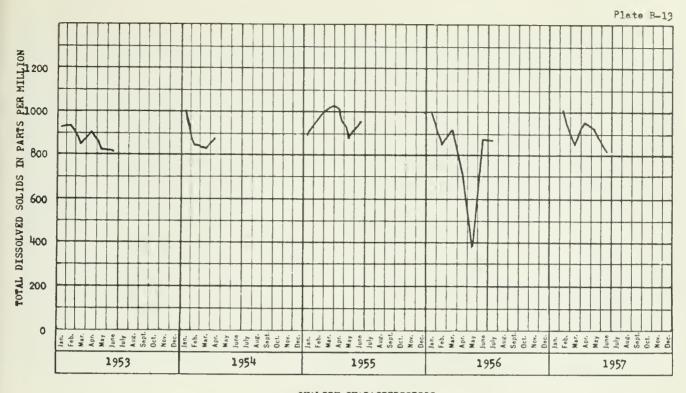




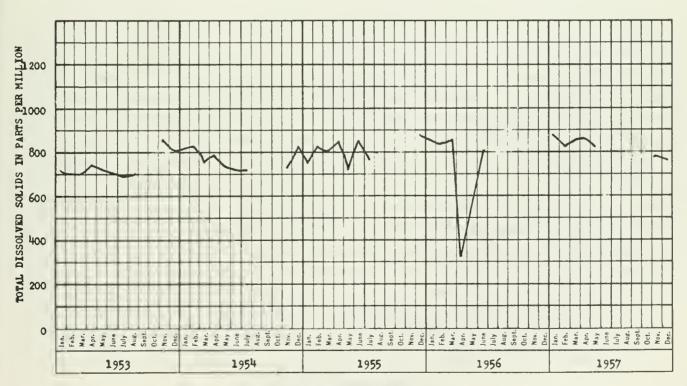
QUALITY CHARACTERISTICS OF SALINAS RIVER AT PASO ROBLES (STATION 43A)



QUALITY CHARACTERISTICS
OF
SAN LORENZO RIVER AT BIG TREES
(STATION 75)

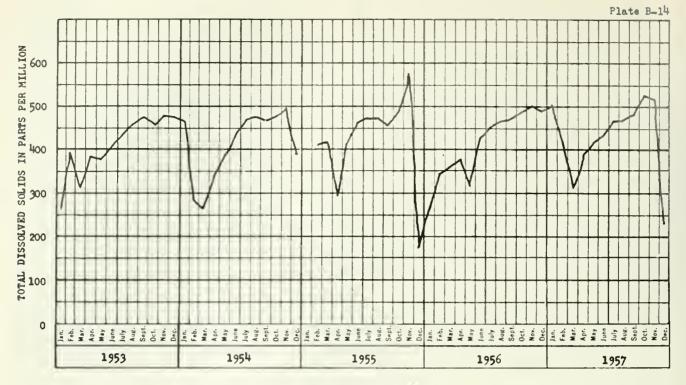


QUALITY CHARACTERISTICS
OF
SANTA YNEZ RIVER BELOW LOS LAURELES CANYON
(STATION 45)

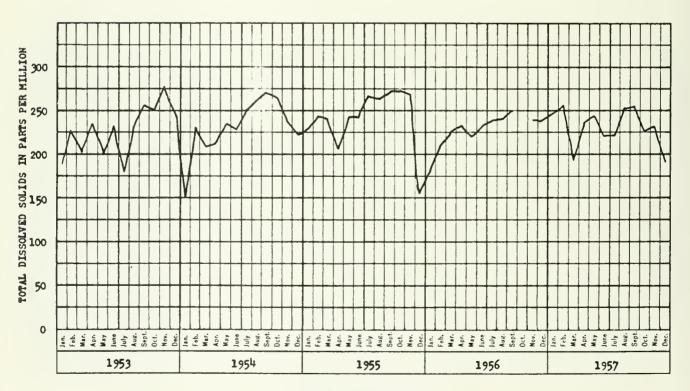


QUALITY CHARACTERISTICS OF SANTA YNEZ RIVER AT SOLVANG (STATION 1+5A)

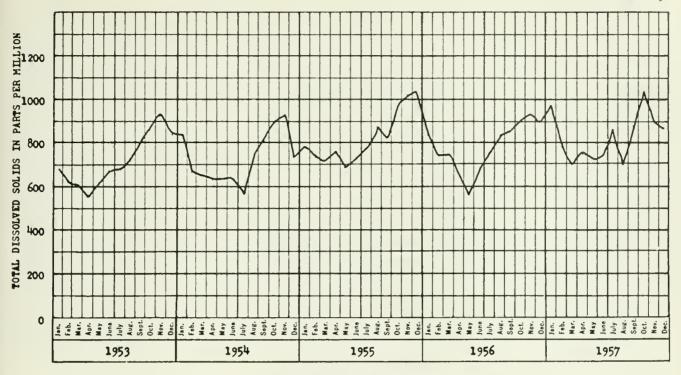




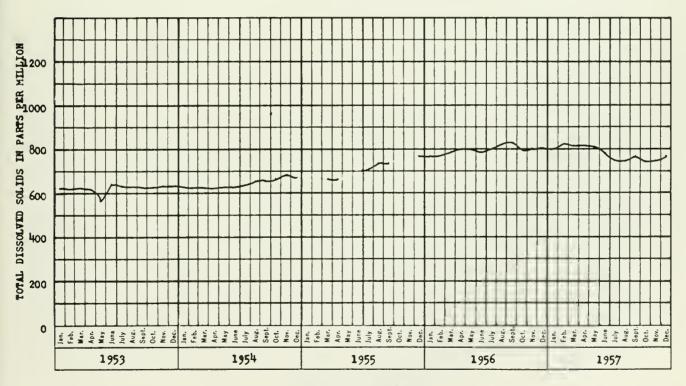
QUALITY CHARACTERISTICS OF SOQUEL CREEK AT SOQUEL (STATION 76)



QUALITY CHARACTERISTICS OF UVAS CREEK NEAR MORGAN HILL (STATION 96)

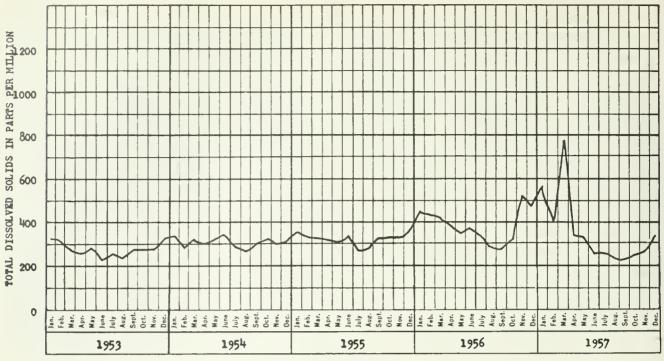


QUALITY CHARACTERISTICS OF MATILIJA CREEK ABOVE MATILIJA DAM (STATION 45B)

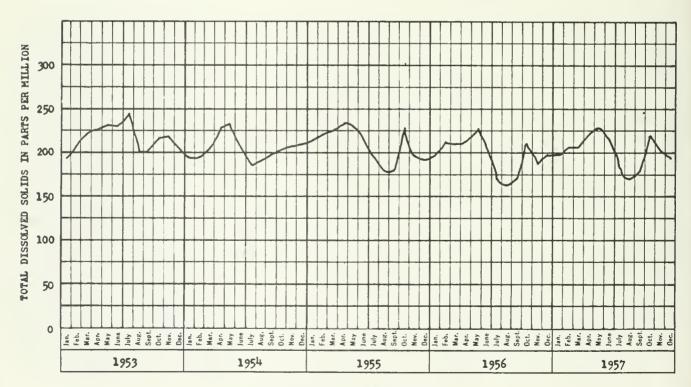


QUALITY CHARACTERISTICS
OF
METROPOLITAN WATER DISTRICT AQUEDUCT AT LA VERNE
(STATION 69)

TOTAL DISSOLVED SQLIDS IN PARTS, PER MILLION

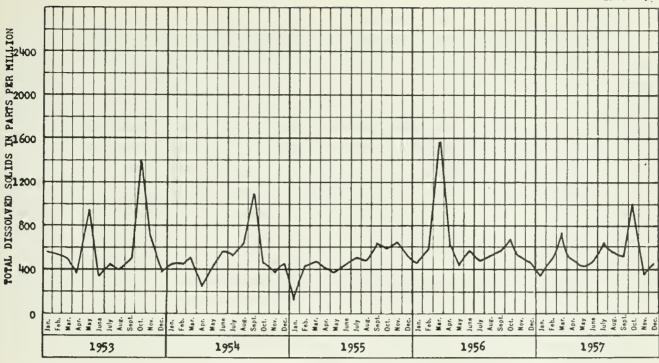


QUALITY CHARACTERISTICS
OF
MISSION CREEK AT WHITTIER NARROWS
(STATION 49A)

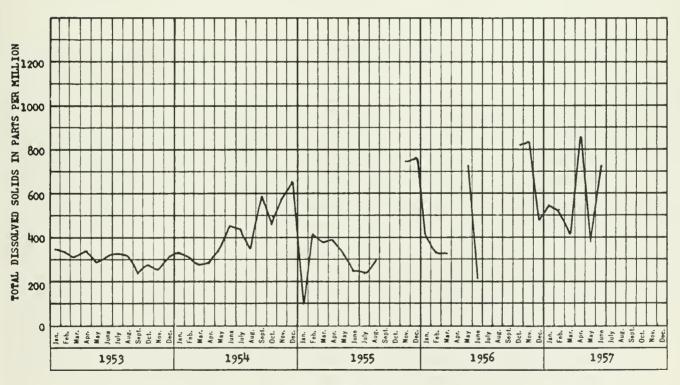


QUALITY CHARACTERISTICS
OF
MONO-OWENS AQUEDUCT NEAR SAN FERNANDO
(STATION 70)

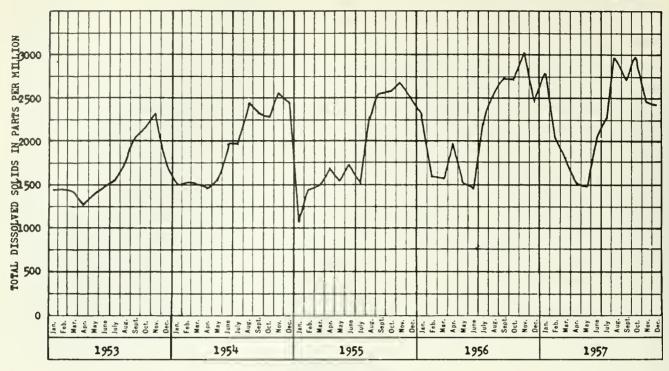




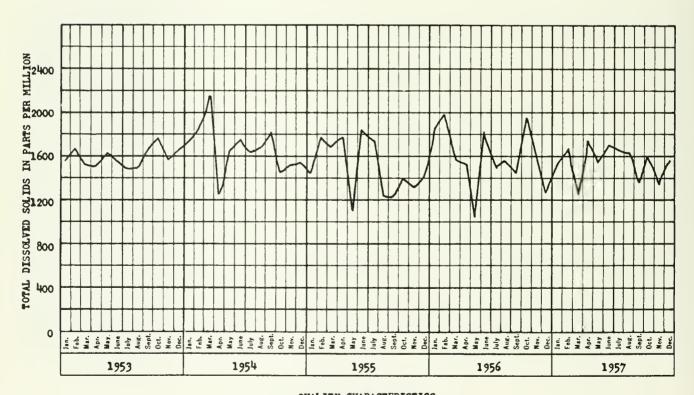
QUALITY CHARACTERISTICS OF RIO HONDO AT WHITTIER NARROWS (STATION 49)



QUALITY CHARACTERISTICS
OF
SAN GABRIEL RIVER AT WHITTIER NARROWS
(STATION 50)

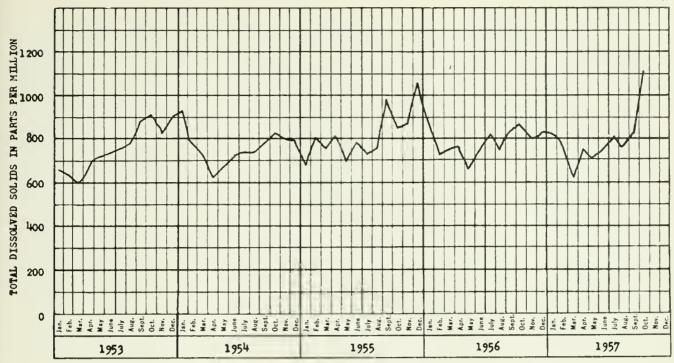


QUALITY CHARACTERISTICS
OF
SANTA CLARA RIVER AT LOS ANGELES VENTURA COUNTY LINE
(STATION 46)



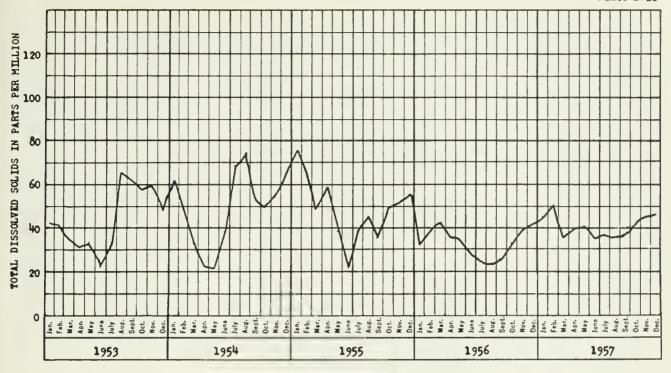
QUALITY CHARACTERISTICS
OF
SANTA CLARA RIVER NEAR SANTA PAULA
(STATION 46A)



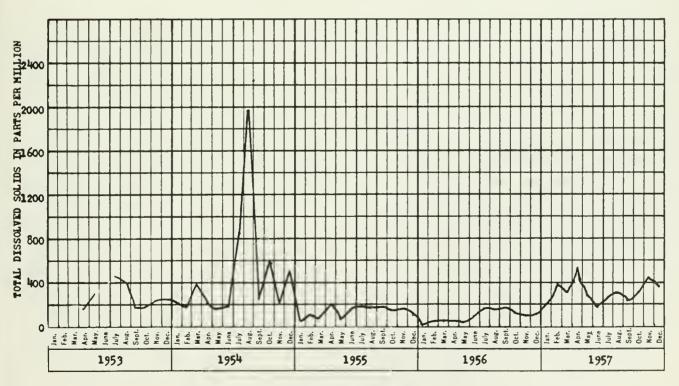


QUALITY CHARACTERISTICS OF VENTURA RIVER NEAR VENTURA (STATION 61)

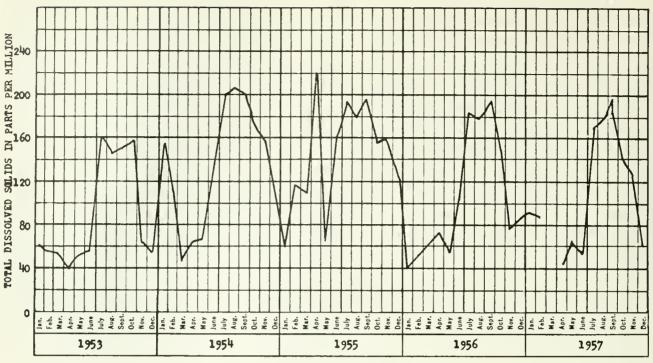




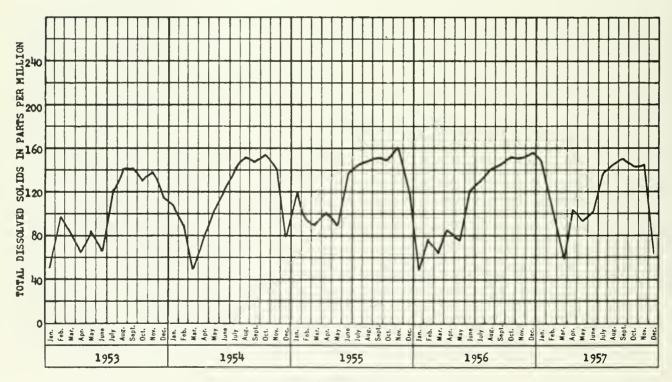
QUALITY CHARACTERISTICS
OF
AMERICAN RIVER AT SACRAMENTO
(STATION 22)



QUALITY CHARACTERISTICS OP BEAR CREEK NEAR STEVINSON (STATION 111)

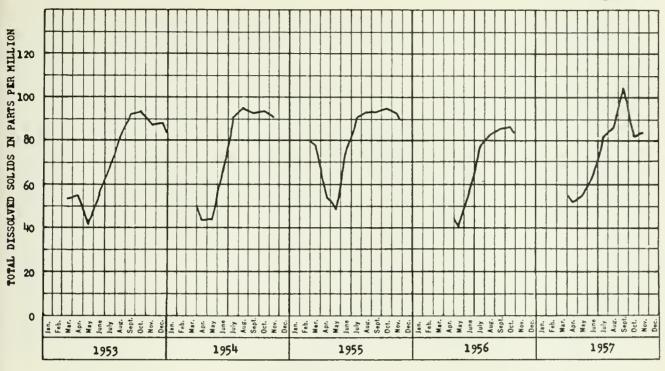


QUALITY CHARACTERISTICS OF BEAR RIVER NEAR WHEATLAND (STATION 78)

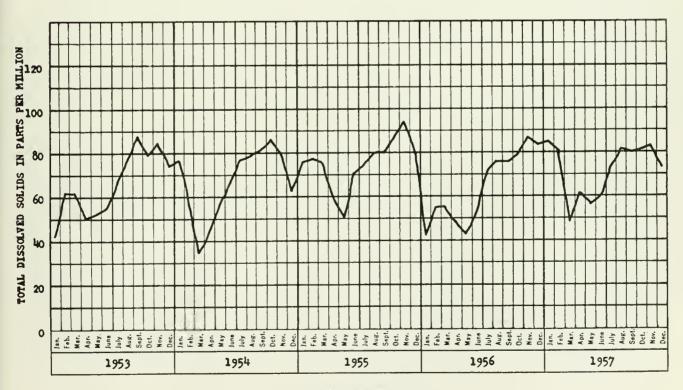


QUALITY CHARACTERISTICS
OF
BIG CHICO CREEK NEAR CHICO
(STATION 85)





#### QUALITY CHARACTERISTICS OF BURNEY CREEK NEAR BURNEY (STATION 17C)



QUALITY CHARACTERISTICS OF BUTTE CREEK NEAR CHICO (STATION 84)

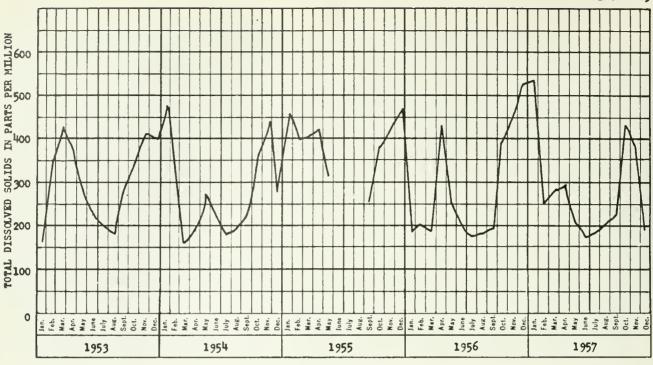


IN PAHTS BEH MILLION

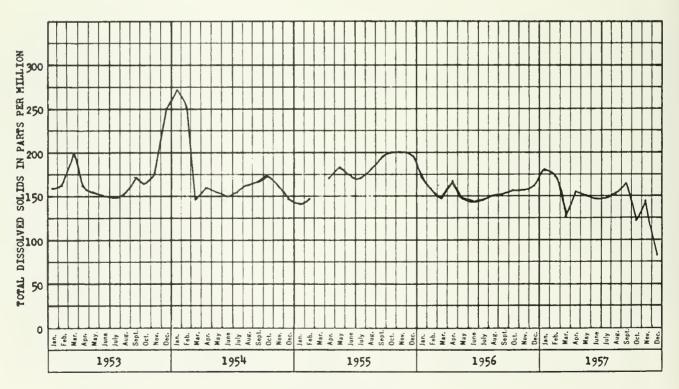
SOLIDS

DISSOLVED

TOTAL

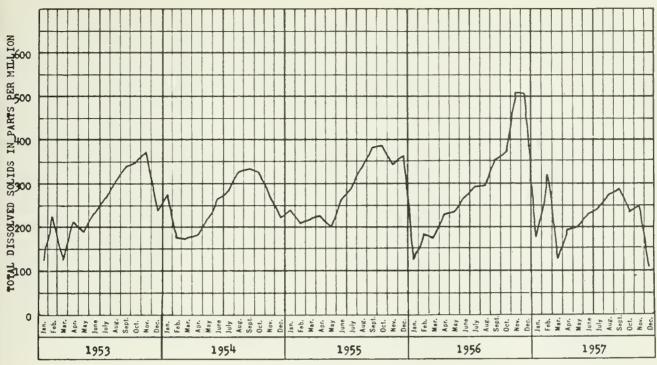


QUALITY CHARACTERISTICS OF CACHE CREEK NEAR CAPAY (STATION 80)

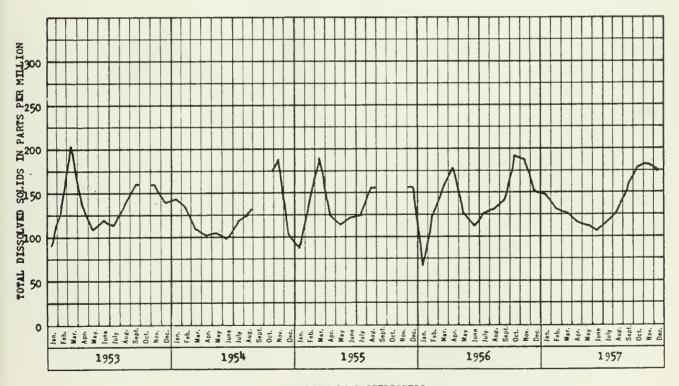


QUALITY CHARACTERISTICS
OF
CACHE CREEK NEAR LOWER LAKE
(STATION 42)



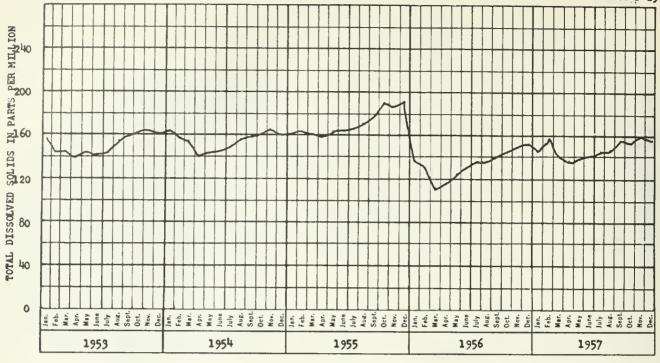


QUALITY CHARACTERISTICS
OF
CACHE CREEK, NORTH FORK, NEAR LOWER LAKE
(STATION 79)

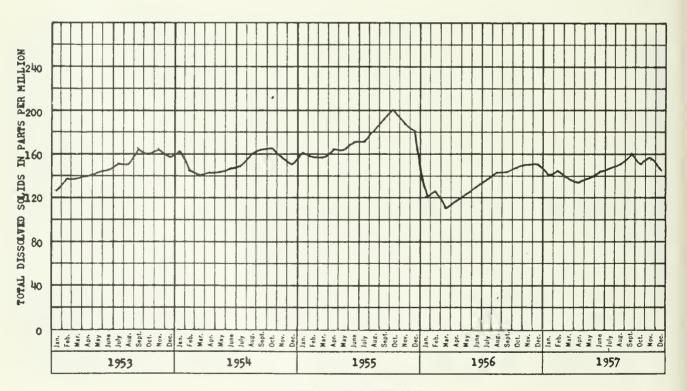


QUALITY CHARACTERISTICS OF CALAVERAS RIVER NEAR JENNY LIND (STATION 16A)

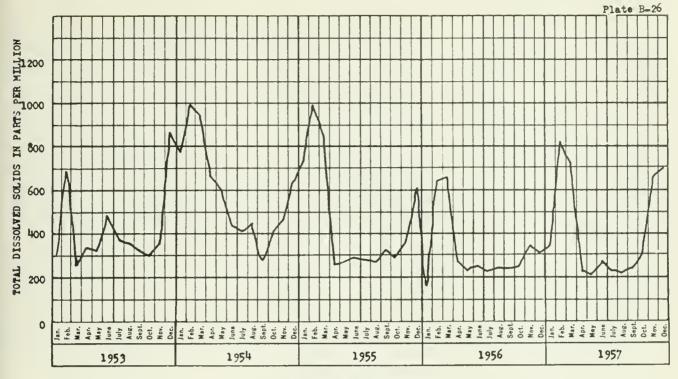




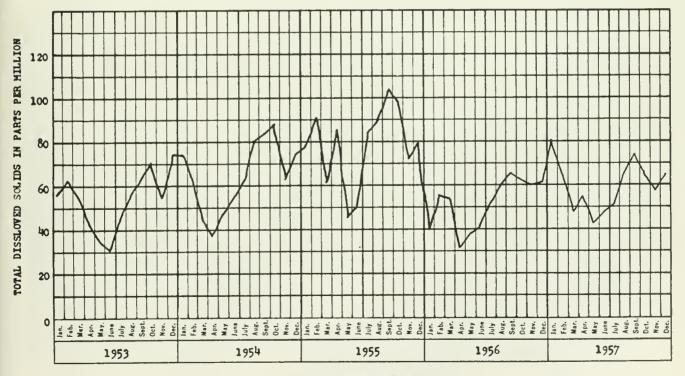
## QUALITY CHARACTERISTICS OF CLEAR LAKE NEAR CLEARLAKE OAKS (STATION 40)



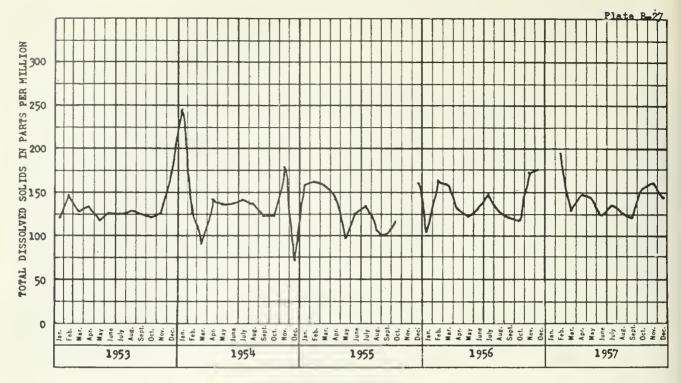
QUALITY CHARACTERISTICS OF CLEAR LAKE AT LAKEPORT (STATION 41)



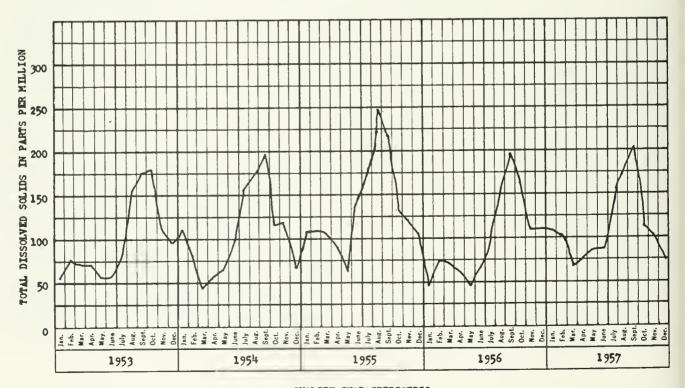
QUALITY CHARACTERISTICS OF COLUSA TROUGH NEAR COLUSA (STATION 87)



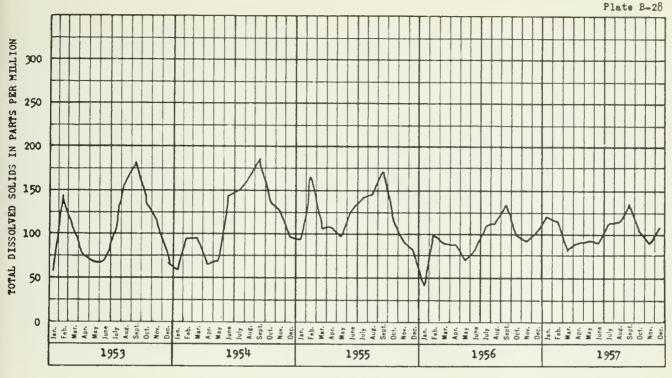
QUALITY CHARACTERISTICS OF COSUMNES RIVER NEAR MICHIGAN BAR (STATION 94)



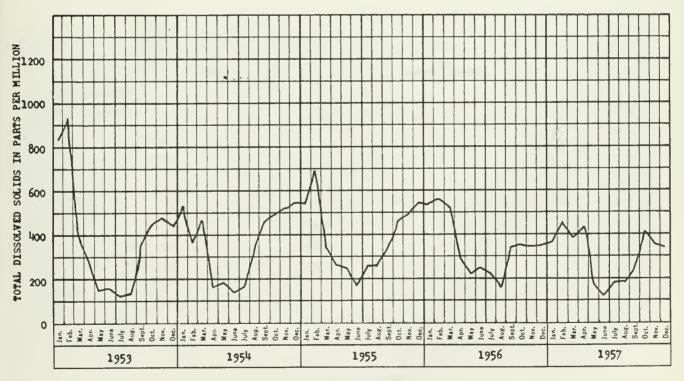
QUALITY CHARACTERISTICS
OF
COTTONWOOD CREEK NEAR COTTONWOOD
(STATION 12B)



QUALITY CHARACTERISTICS OF DEER CREEK NEAR VINA (STATION 95)

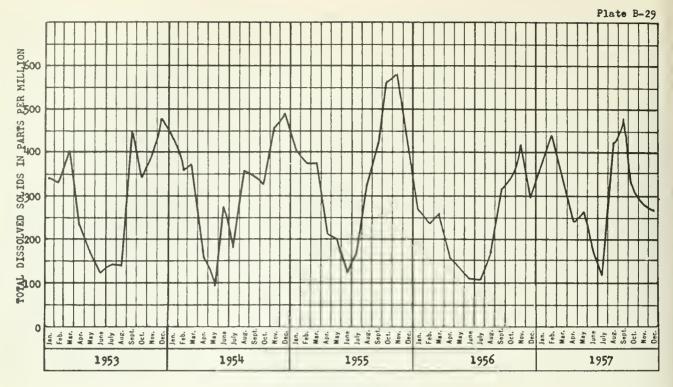


QUALITY CHARACTERISTICS OF DELTA CROSS CHANNEL NEAR WALNUT GROVE (STATION 98)

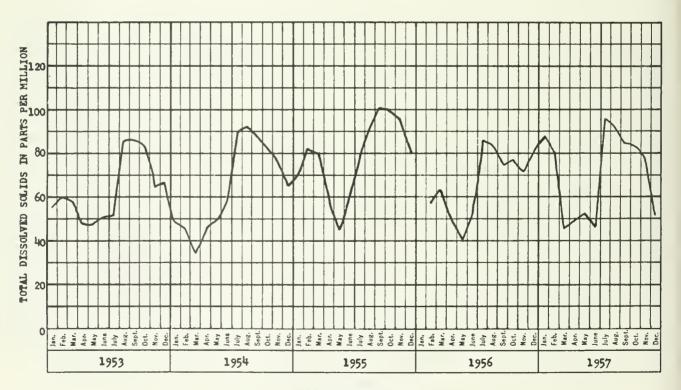


QUALITY CHARACTERISTICS
OF
DELTA-MENDOTA CANAL NEAR MENDOTA
(STATION 92)



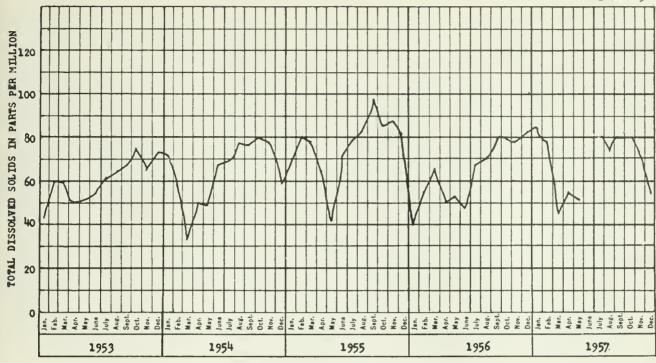


QUALITY CHARACTERISTICS
OF
DELTA-MENDOTA CANAL NEAR TRACY
(STATION 93)

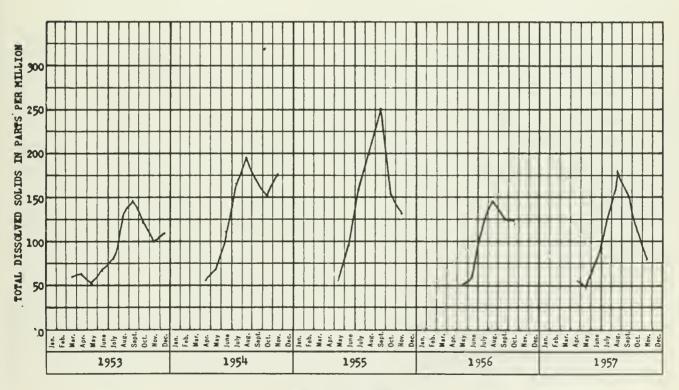


QUALITY CHARACTERISTICS OF FEATHER RIVER AT NICOLAUS (STATION 20)

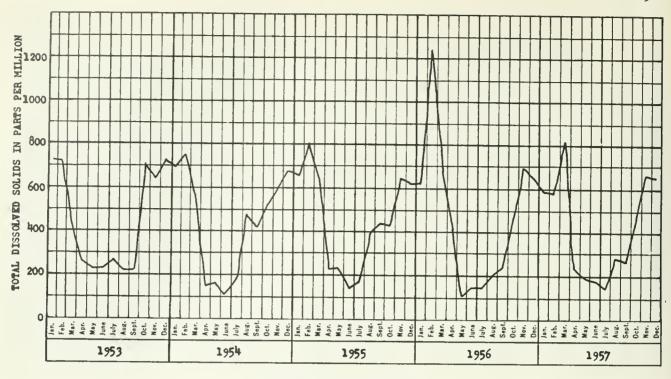




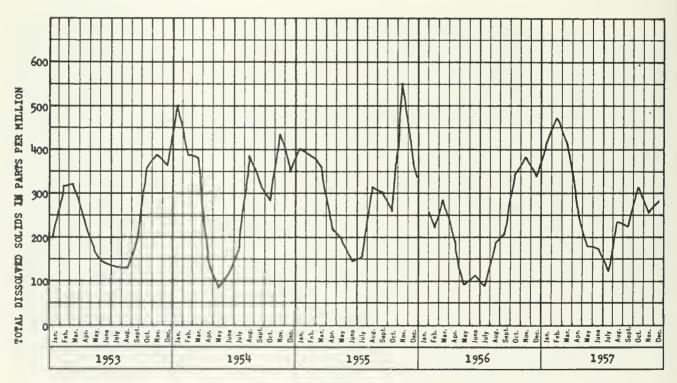
QUALITY CHARACTERISTICS OF FEATHER RIVER NEAR OROVILLE (STATION 19)



QUALITY CHARACTERISTICS OF INDIAN CREEK NEAR CRESCENT MILLS (STATION 17D)

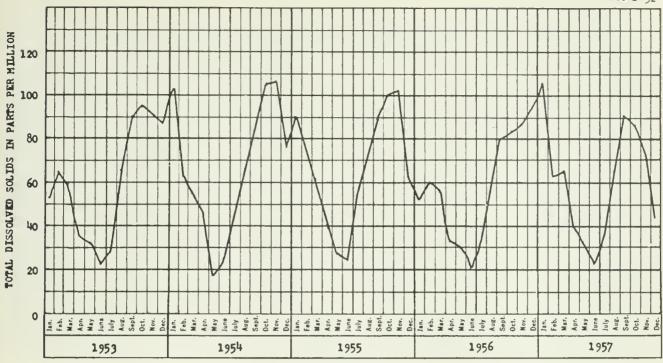


QUALITY CHARACTERISTICS
OF
INDIAN SLOUGH NEAR BRENTWOOD
(STATION 107)

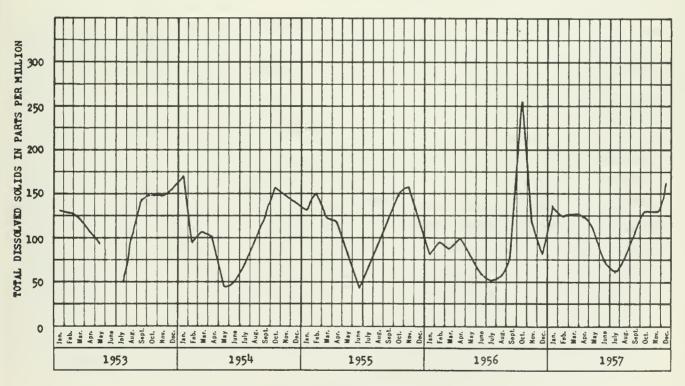


QUALITY CHARACTERISTICS OF ITALIAN SLOUGH NEAR MOUTH (STATION 106)

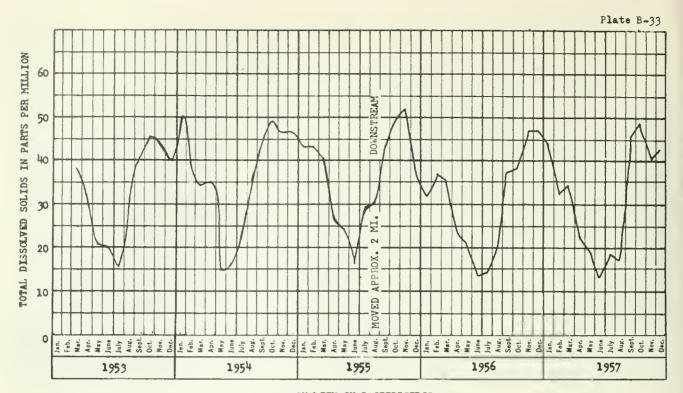




## QUALITY CHARACTERISTICS OF KAWEAH RIVER NEAR THREE RIVERS (STATION 35)



QUALITY CHARACTERISTICS OF KERN RIVER NEAR BAKERSFIELD (STATION 36)



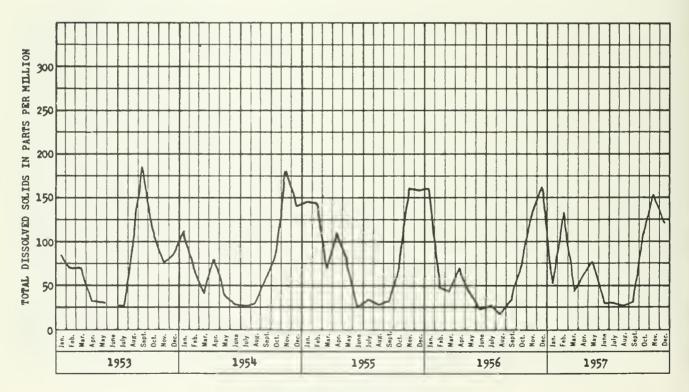
QUALITY CHARACTERISTICS

OF

KINGS RIVER ABOVE NORTH FORK (STATION 33, 3/53-8/55)

AND

KINGS RIVER BELOW NORTH FORK (STATION 33c, 9/55-12/57)

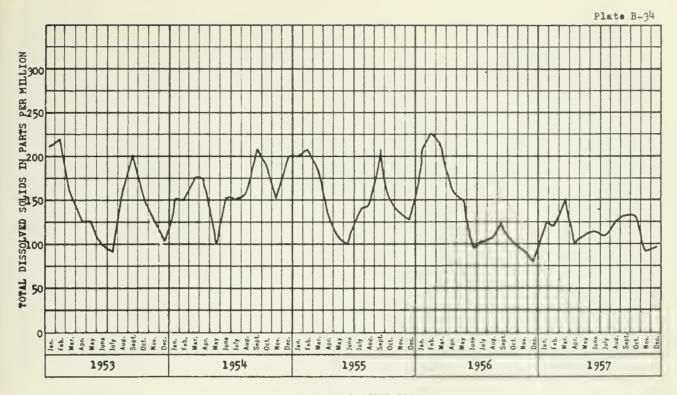


QUALITY CHARACTERISTICS

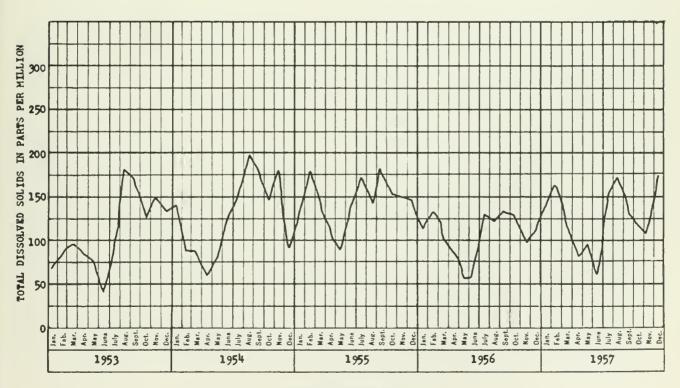
OF

KINGS RIVER BELOW PEOPLES WEIR

(STATION 34)

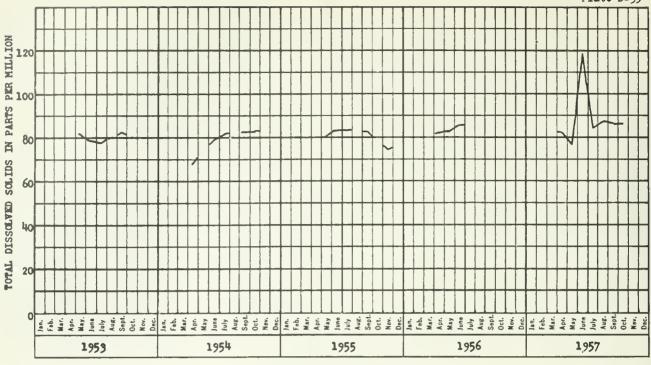


QUALITY CHARACTERISTICS OF LINDSEY SLOUGH NEAR RIO VISTA (STATION 110)

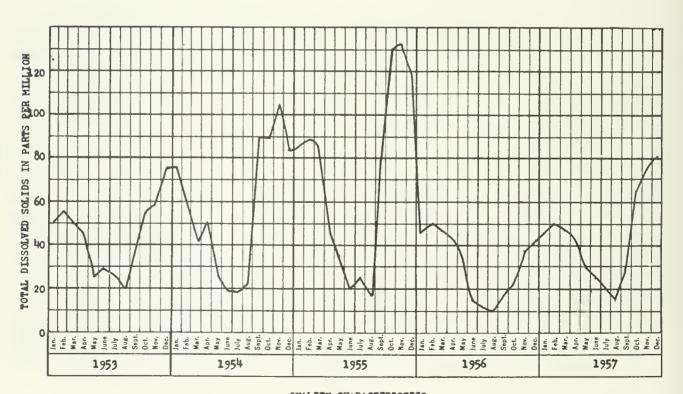


QUALITY CHARACTERISTICS OF LITTLE POTATO SLOUGH AT TERMINOUS (STATION 99)



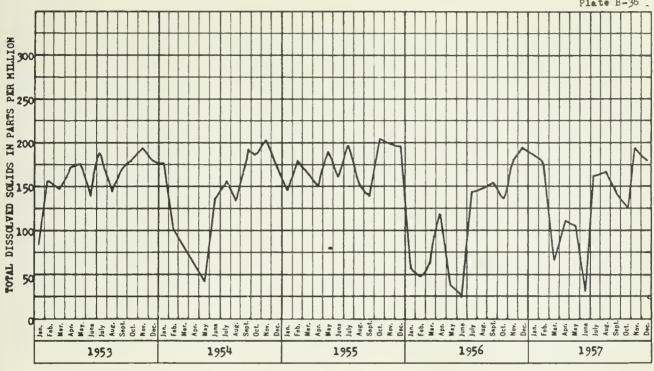


QUALITY CHARACTERISTICS OF McCLOUD RIVER ABOVE SHASTA LAKE (STATION 18)

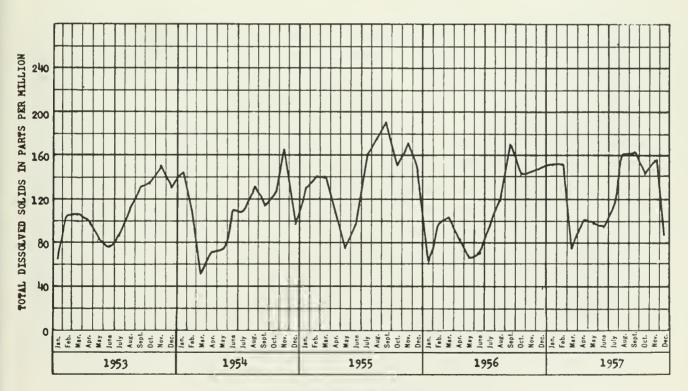


QUALITY CHARACTERISTICS
OF
MERCED RIVER BELOW EXCHEQUER DAM
(STATION 32A)

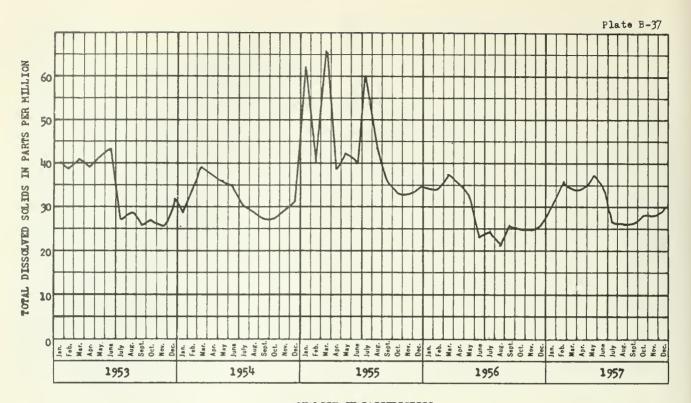




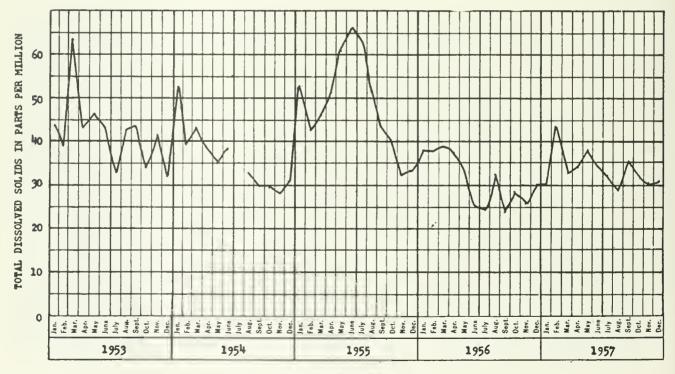
QUALITY CHARACTERISTICS MERCED RIVER NEAR STEVINSON (STATION 32)



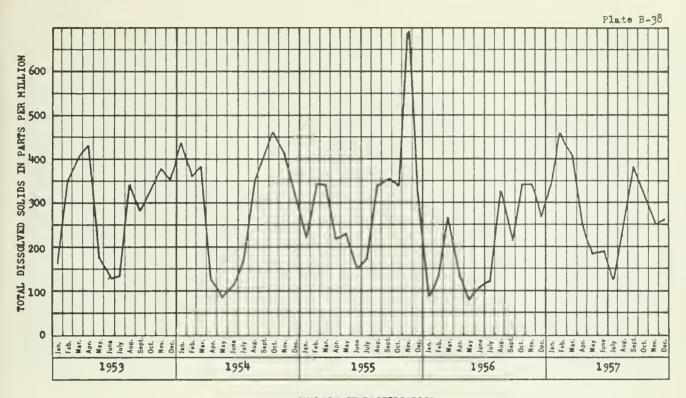
QUALITY CHARACTERISTICS MILL CREEK NEAR LOS MOLINOS (STATION 88)



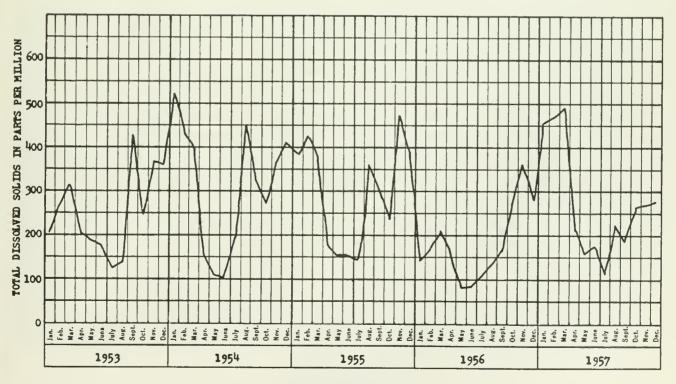
QUALITY CHARACTERISTICS
OF
MOKELUMNE RIVER NEAR LANCHA PLANA
(STATION 23A)



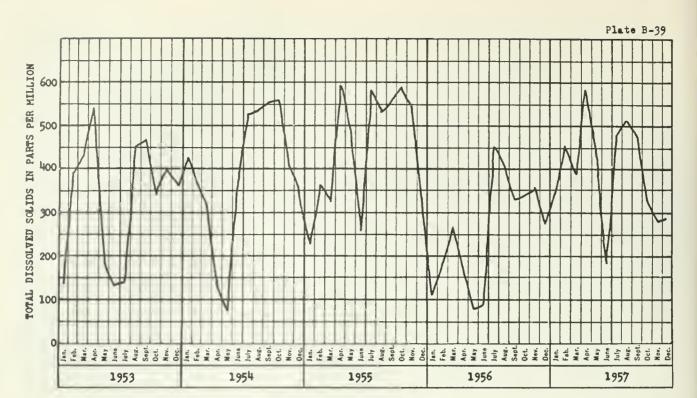
QUALITY CHARACTERISTICS OF MOKELUMNE RIVER AT WOODBRIDGE (STATION 23)



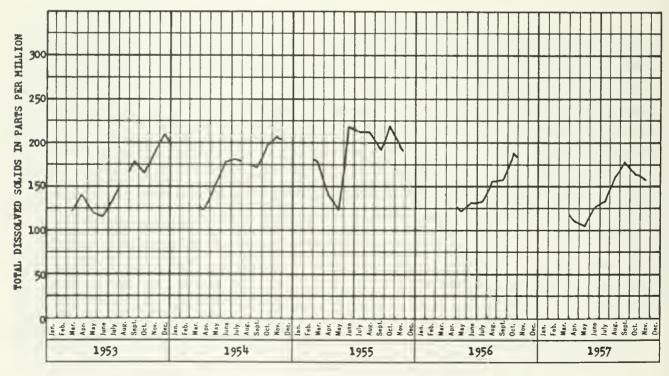
QUALITY CHARACTERISTICS
OF
OLD RIVER AT CLIFTON COURT FERRY
(STATION 104)



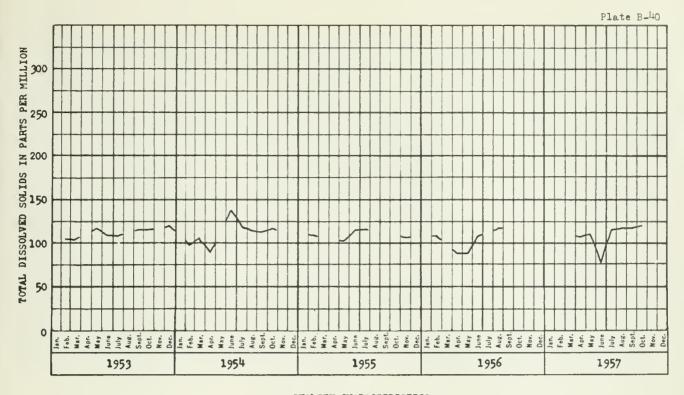
QUALITY CHARACTERISTICS OF OLD RIVER AT ORWOOD BRIDGE (STATION 108)



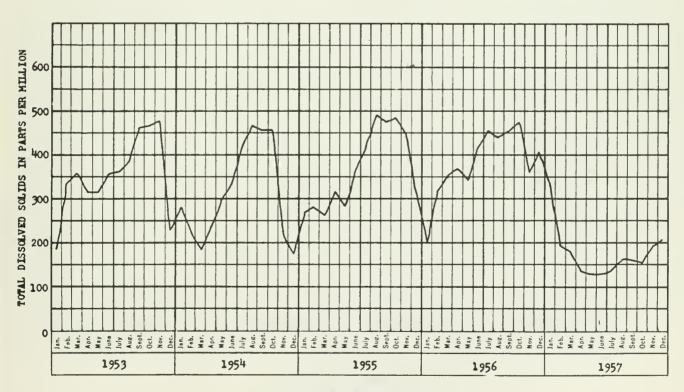
QUALITY CHARACTERISTICS OF OLD RIVER NEAR TRACY (STATION 103)



QUALITY CHARACTERISTICS OF PIT RIVER NEAR CANBY (STATION 17A)

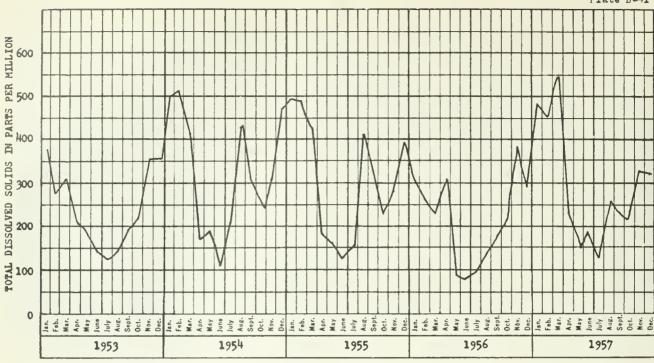


QUALITY CHARACTERISTICS
OF
PIT RIVER NEAR MONTGOMERY CREEK
(STATION 17)

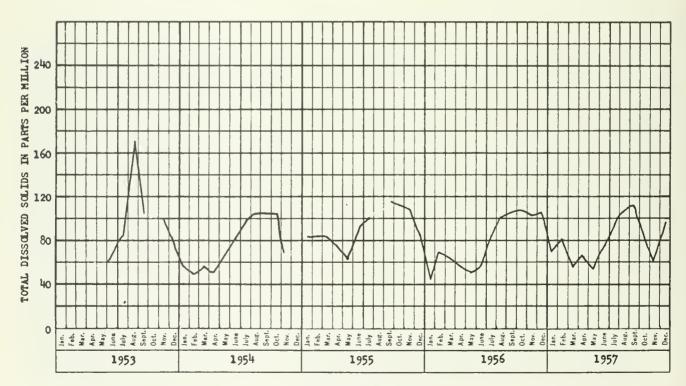


QUALITY CHARACTERISTICS OF PUTAH CREEK NEAR WINTERS (STATION 81)

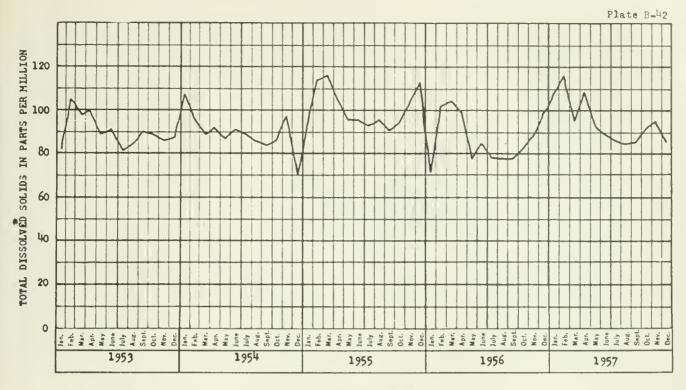




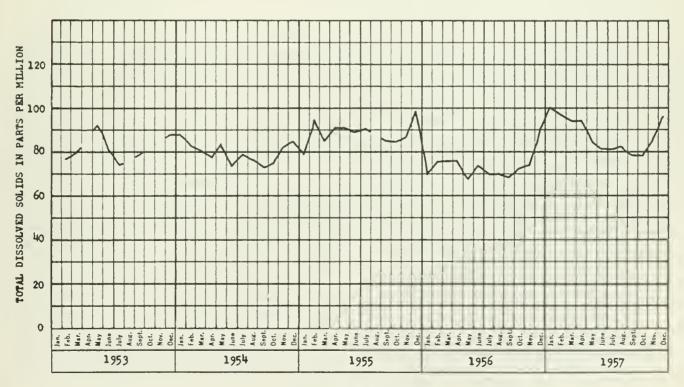
QUALITY CHARACTERISTICS
OF
ROCK SLOUGH NEAR KNIGHTSEN
(Station 109)



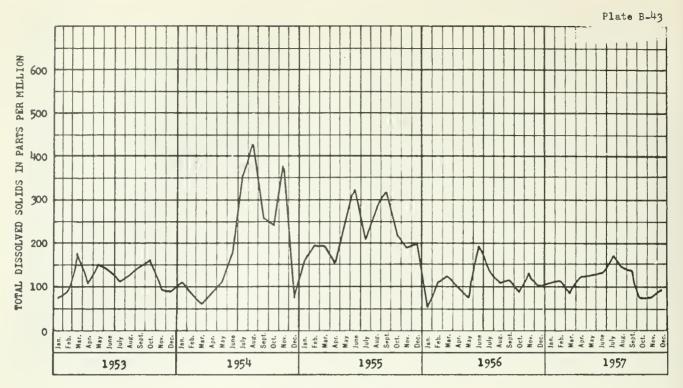
QUALITY CHARACTERISTICS OF SACRAMENTO RIVER AT DELTA (STATION 11)



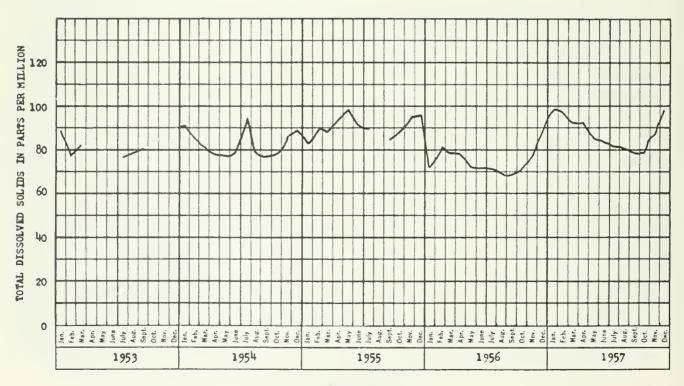
QUALITY CHARACTERISTICS
OF
SACRAMENTO RIVER NEAR HAMILTON CITY
(STATION 13)



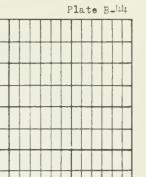
QUALITY CHARACTERISTICS OF SACRAMENTO RIVER AT KESWICK (STATION 12)

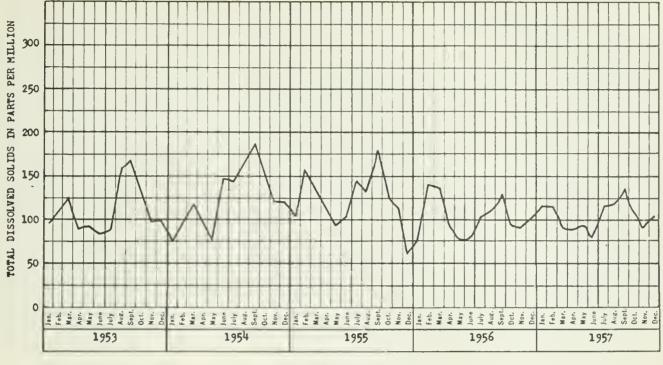


QUALITY CHARACTERISTICS
OF
SACRAMENTO RIVER AT KNIGHTS LANDING
(STATIC: 14)

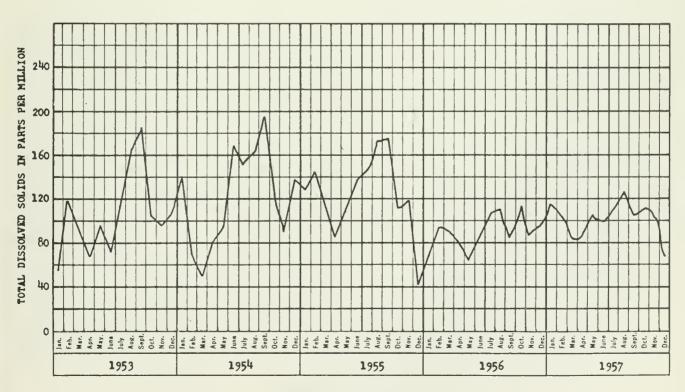


QUALITY CHARACTERISTICS OF SACRAMENTO RIVER NEAR REDDING (STATION 12A)

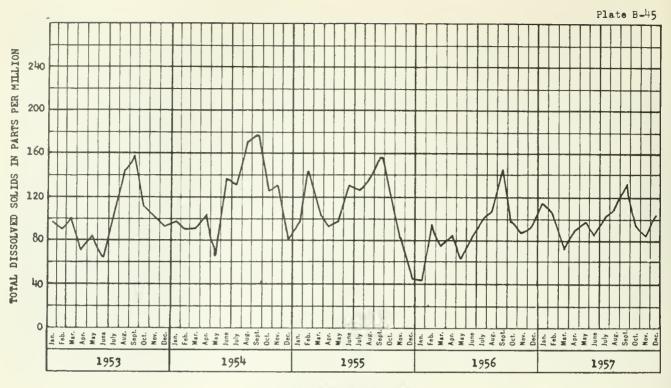




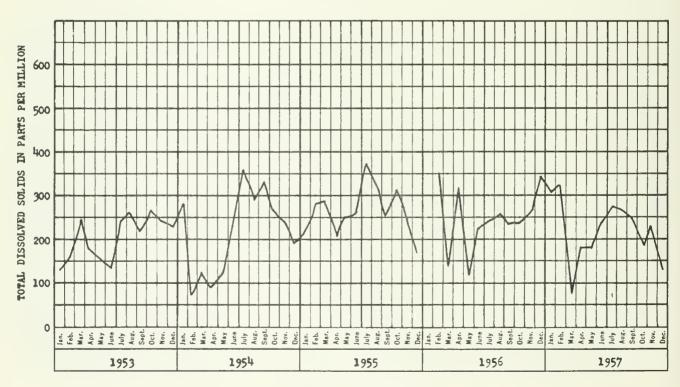
QUALITY CHARACTERISTICS OF SACRAMENTO RIVER AT RIO VISTA (STATION 16)



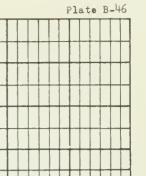
QUALITY CHARACTERISTICS OF SACRAMENTO RIVER AT SACRAMENTO (STATION 15)

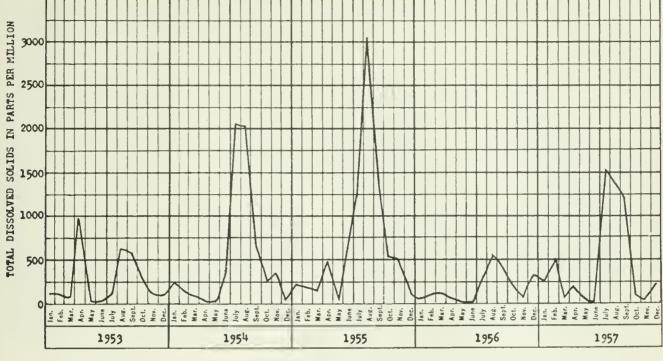


QUALITY CHARACTERISTICS
OF
SACRAMENTO RIVER AT SNODGRASS SLOUGH
(STATION 97)

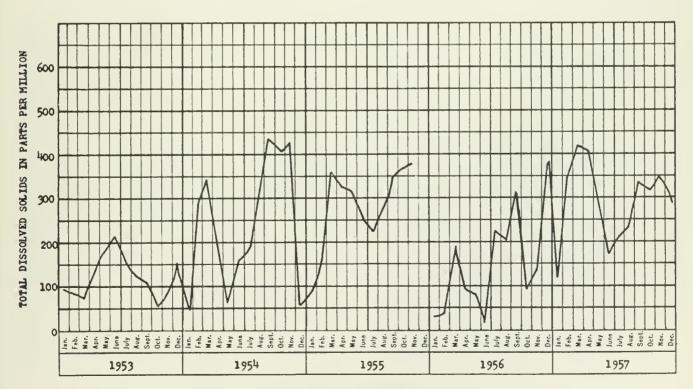


QUALITY CHARACTERISTICS
OF
SACRAMENTO SLOUGH NEAR KNIGHTS LANDING
(STATION 14A)

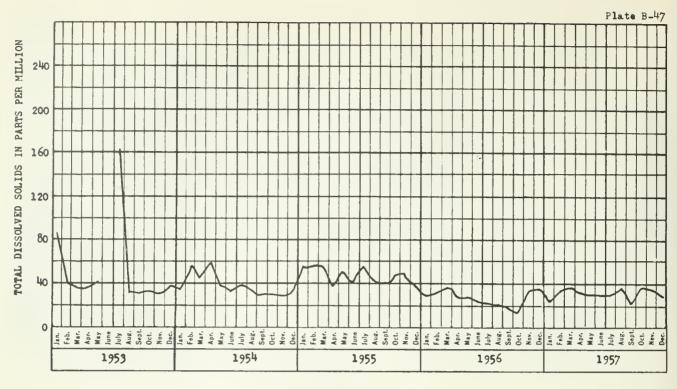




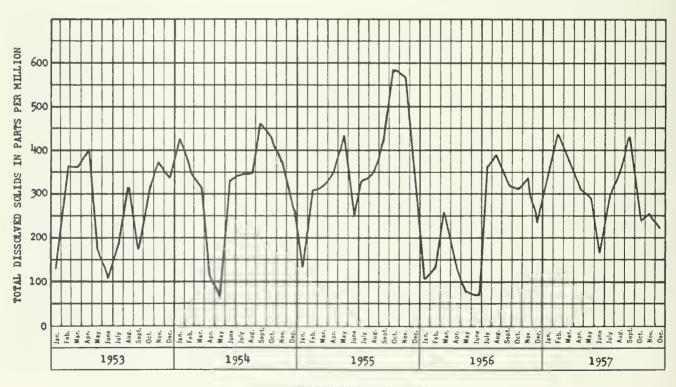
QUALITY CHARACTERISTICS OF SAN JOAQUIN RIVER AT ANTIOCH (STATION 28)



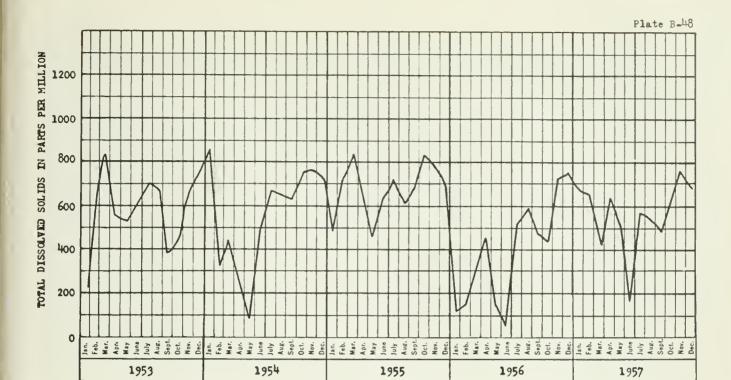
QUALITY CHARACTERISTICS SAN JOAQUIN RIVER NEAR DOS PALOS (STATION 25A)



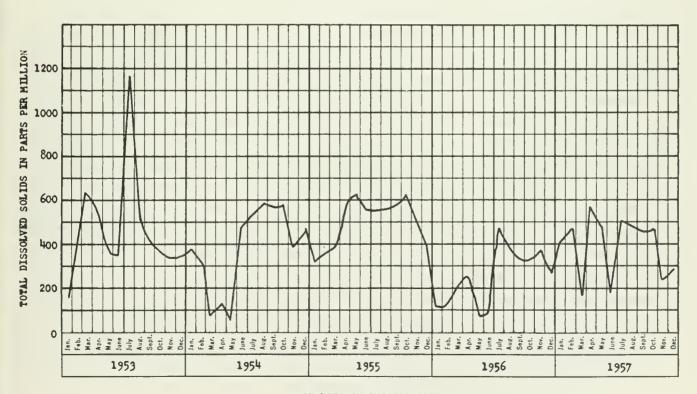
QUALITY CHARACTERISTICS
OF
SAN JOAQUIN RIVER AT FRIANT
(STATION 24)



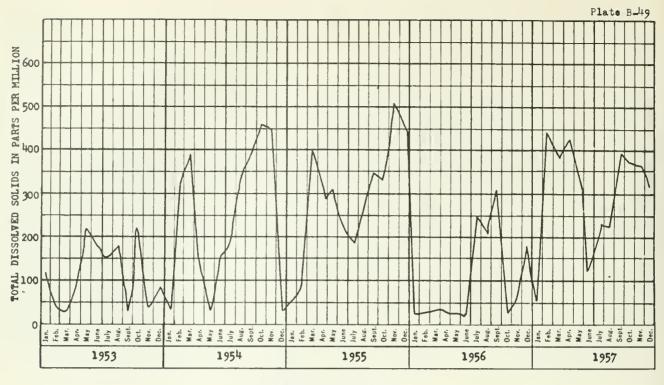
QUALITY CHARACTERISTICS OF SAN JOAQUIN RIVER AT OARWOOD BRIDGE (STATION 101)



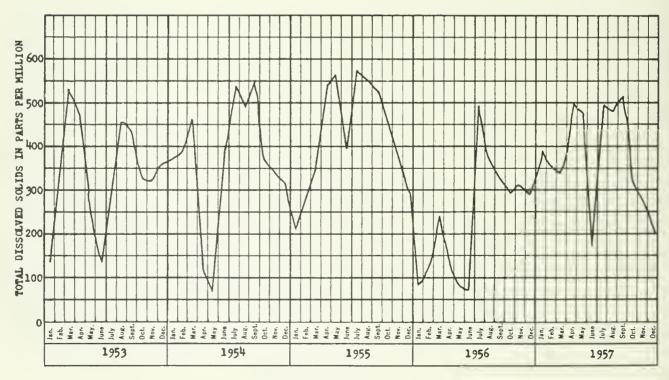
QUALITY CHARACTERISTICS
OF
SAN JOAQUIN RIVER NEAR GRAYSON
(STATION 26)



QUALITY CHARACTERISTICS
OF
SAN JOAQUIN RIVER AT MAZE ROAD BRIDGE
(STATION 26A)

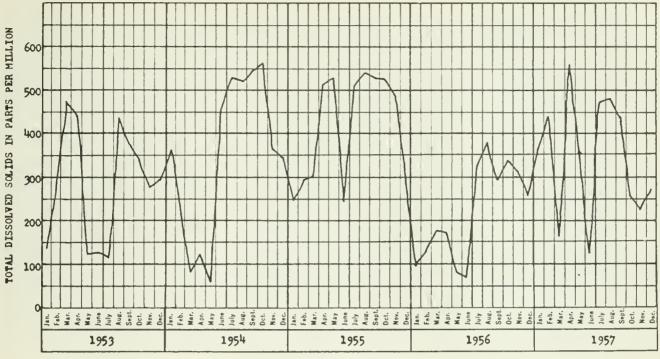


QUALITY CHARACTERISTICS
OF
SAN JOAQUIN RIVER NEAR MENDOTA
(STATION 25)

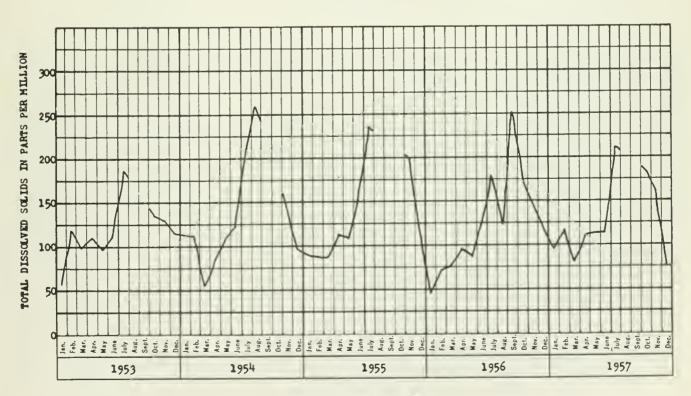


QUALITY CHARACTERISTICS
OF
SAN JOAQUIN RIVER AT MOSSDALE BRIDGE
(STATION 102)



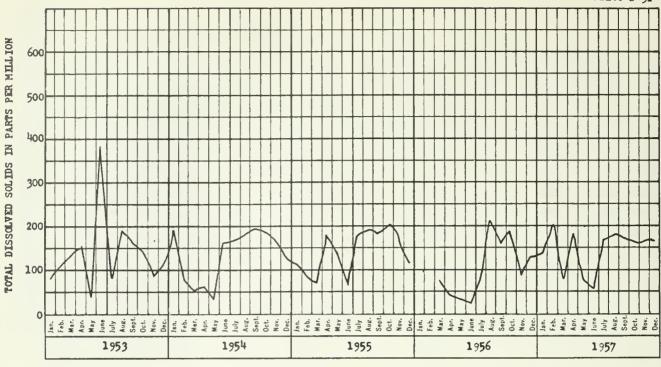


QUALITY CHARACTERISTICS OF SAN JOAQUIN RIVER NEAR VERNALIS (STATION 27)

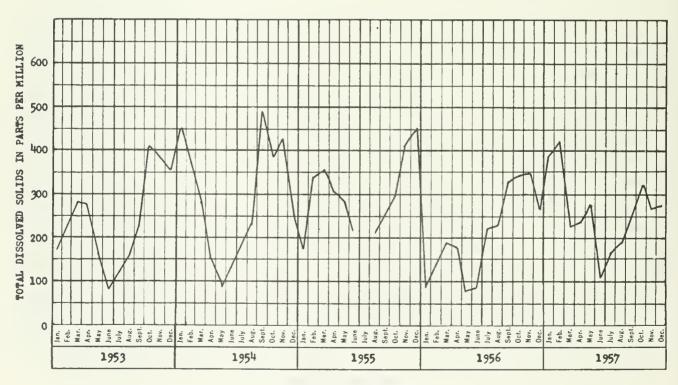


QUALITY CHARACTERISTICS
OF
SOUTH HONCUT CREEK NEAR BANGOR
(STATION 90)



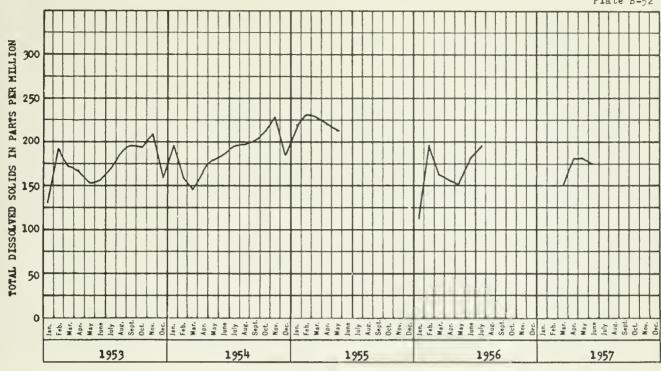


QUALITY CHARACTERISTICS OF STANISLAUS RIVER NEAR MOUTH (STATION 29)

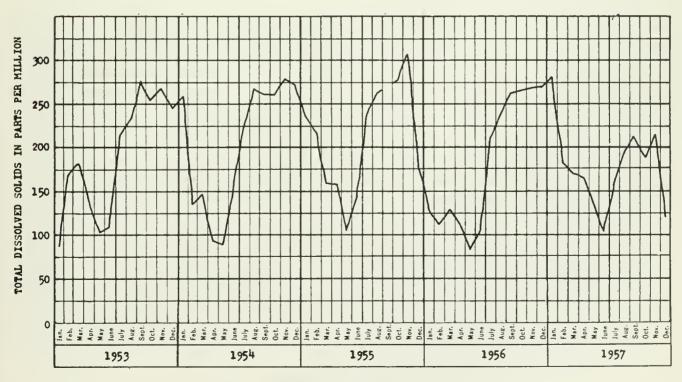


QUALITY CHARACTERISTICS
OF
STOCKTON SHIP CHANNEL AT RINDGE ISLAND
(STATION 100)

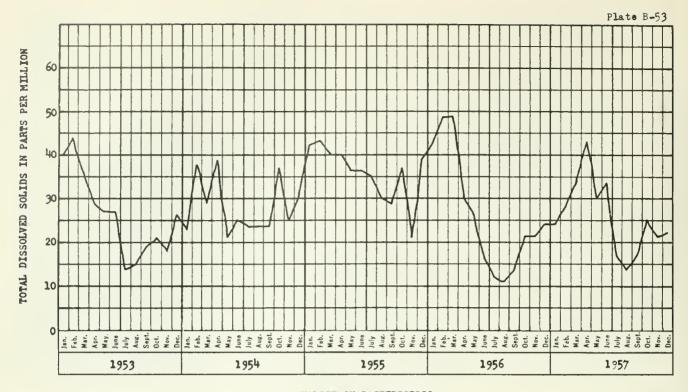




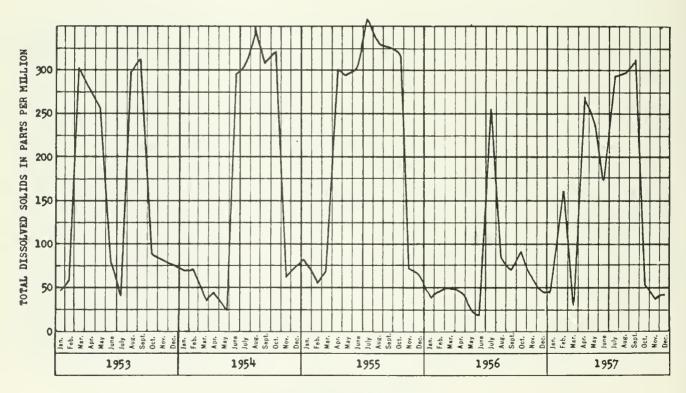
QUALITY CHARACTERISTICS OF STONY CREEK NEAR HAMILTON CITY (STATION 13A)



QUALITY CHARACTERISTICS OF TULE RIVER NEAR PORTERVILLE (STATION 91)

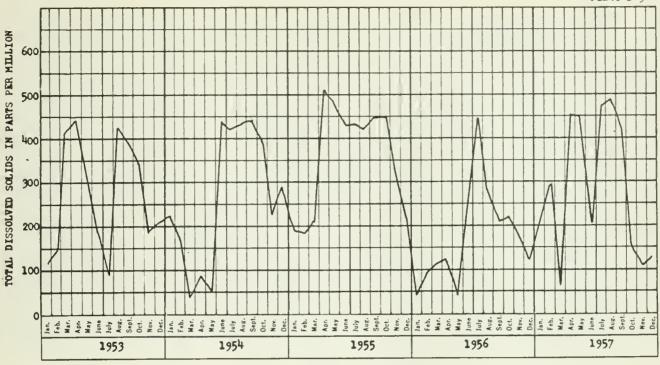


QUALITY CHARACTERISTICS OF TUOLUMNE RIVER BELOW DON PEDRO DAM (STATION 31A)

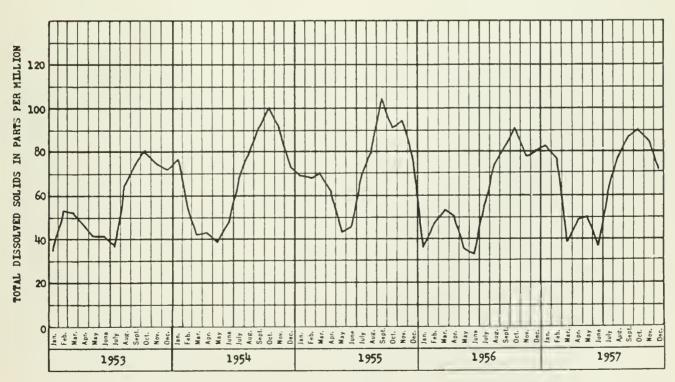


QUALITY CHARACTERISTICS
OF
TUOLUMNE RIVER AT HICKMAN-WATERFORD BRIDGE
(STATION 30.)



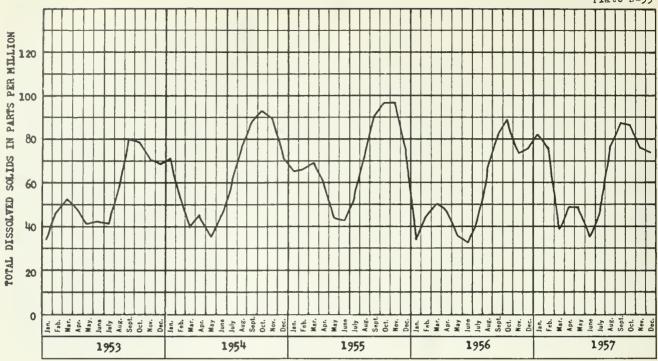


QUALITY CHARACTERISTICS OF TUCLUMNE RIVER AT TUCLUMNE CITY (STATION 31)



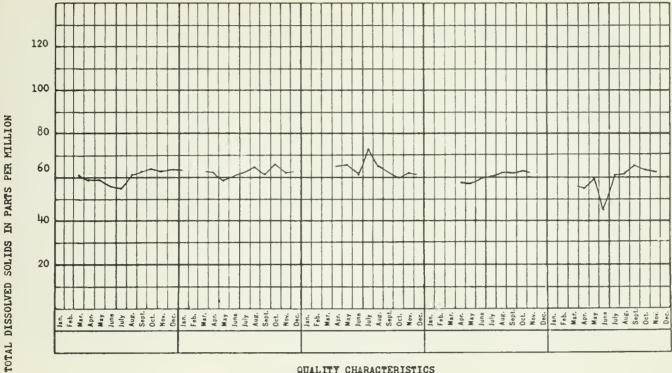
QUALITY CHARACTERISTICS OF OF YUBA RIVER AT MARYSVILLE (STATION 21)



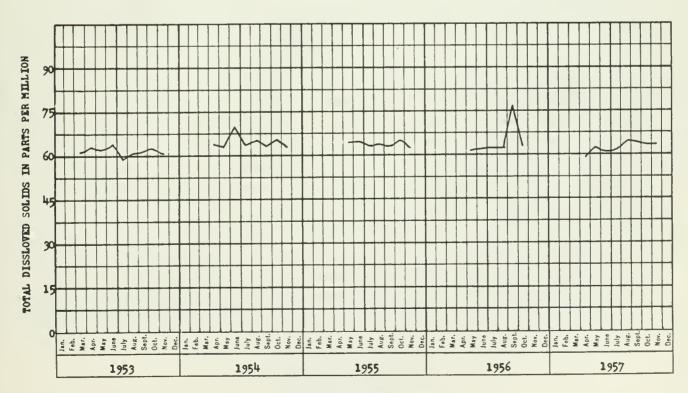


QUALITY CHARACTERISTICS OF YUBA RIVER NEAR STARTVILLE (STATION 21A)

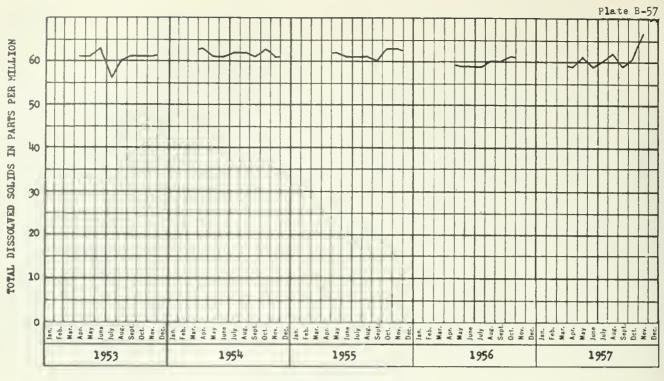




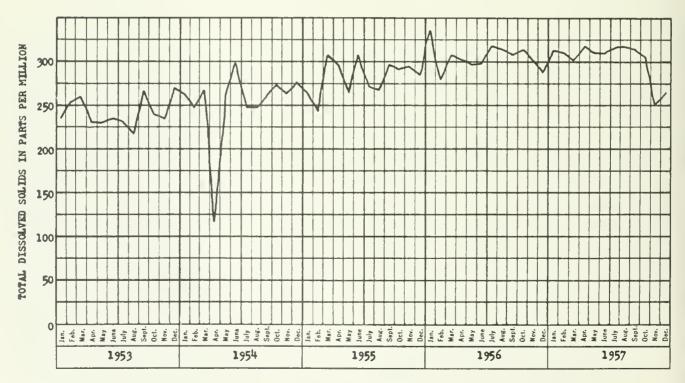
QUALITY CHARACTERISTICS OF LAKE TAHOE AT BIJOU (STATION 39)



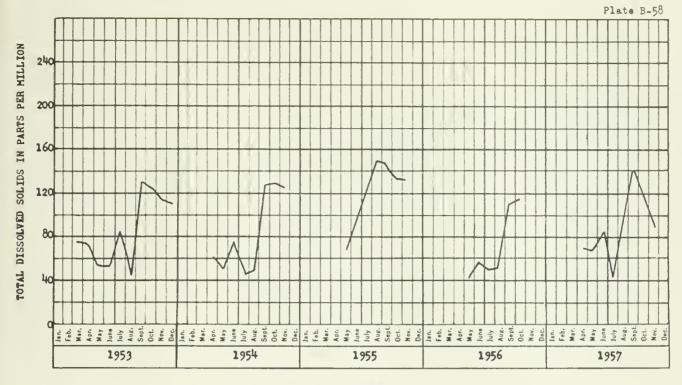
QUALITY CHARACTERISTICS OF LAKE TAHOE AT TAHOE CITY (STATION 38)



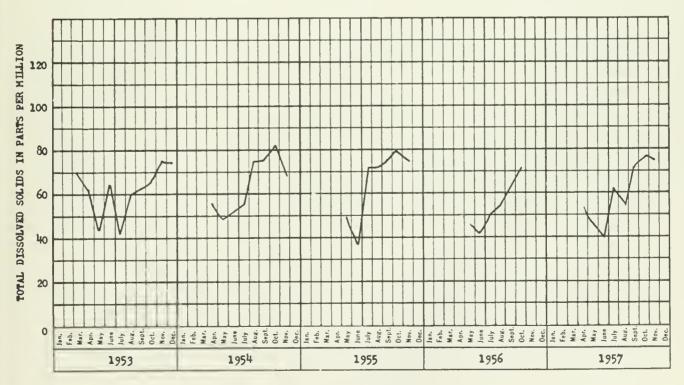
QUALITY CHARACTERISTICS OF LAKE TAHOE AT TAHOE VISTA (STATION 37)



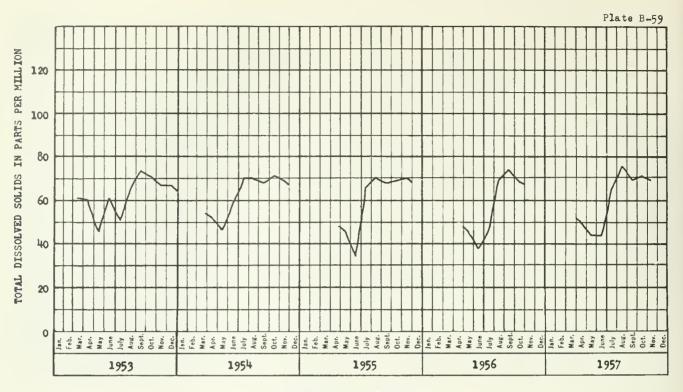
QUALITY CHARACTERISTICS
OF
MOJAVE RIVER NEAR VICTORVILLE
(STATION 67)



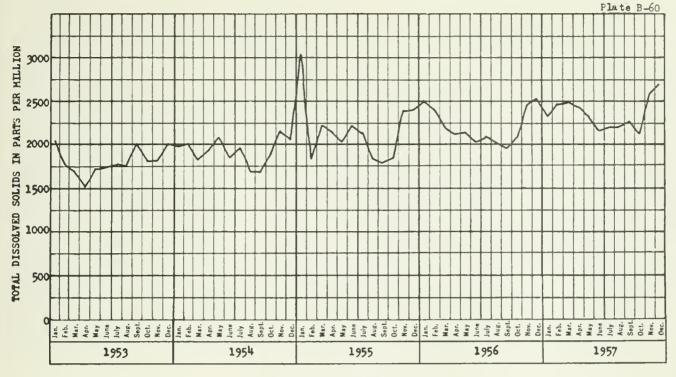
QUALITY CHARACTERISTICS OF SUSAN RIVER AT SUSANVILLE (STATION 17B)



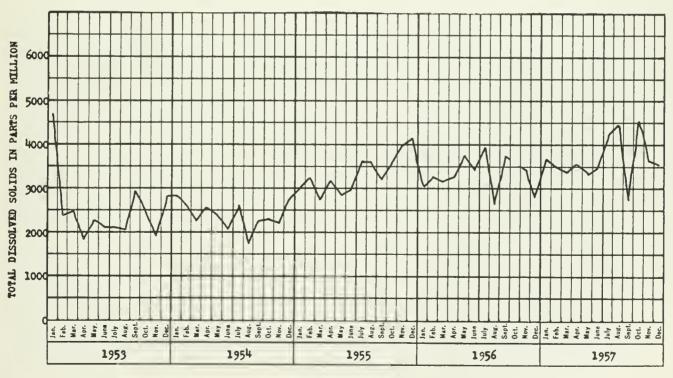
QUALITY CHARACTERISTICS OF TRUCKEE RIVER NEAR FARAD (STATION 53)



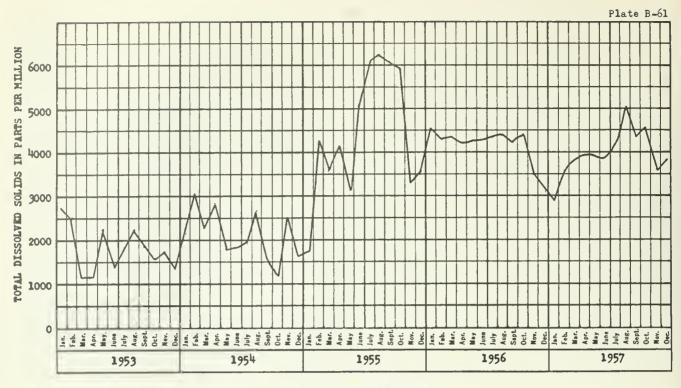
QUALITY CHARACTERISTICS OF TRUCKEE RIVER NEAR TRUCKEE (STATION 52)



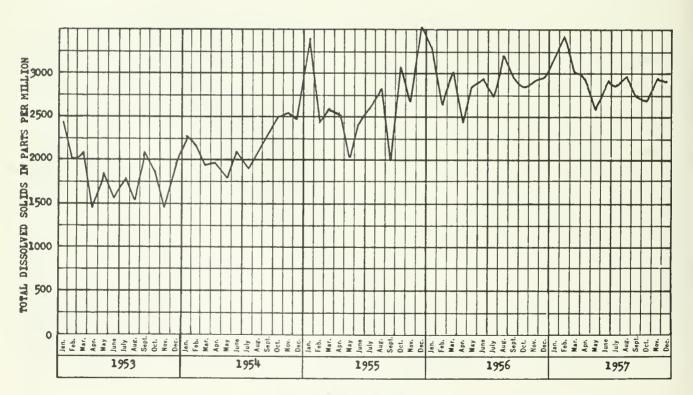
QUALITY CHARACTERISTICS OF ALAMO RIVER NEAR CALAPATRIA (STATION 60)



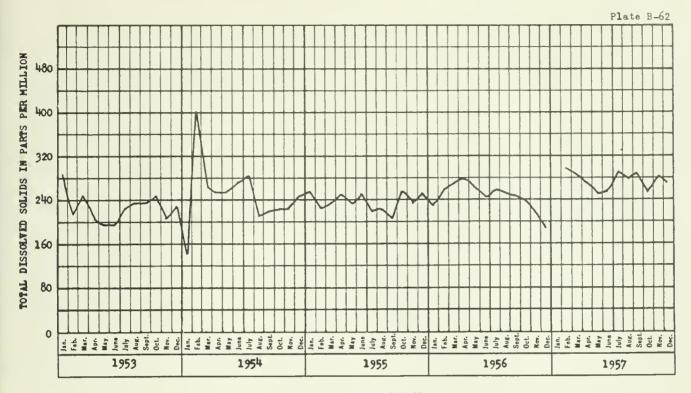
QUALITY CHARACTERISTICS
OF
ALAMO RIVER AT INTERNATIONAL BOUNDARY
(STATION 59)



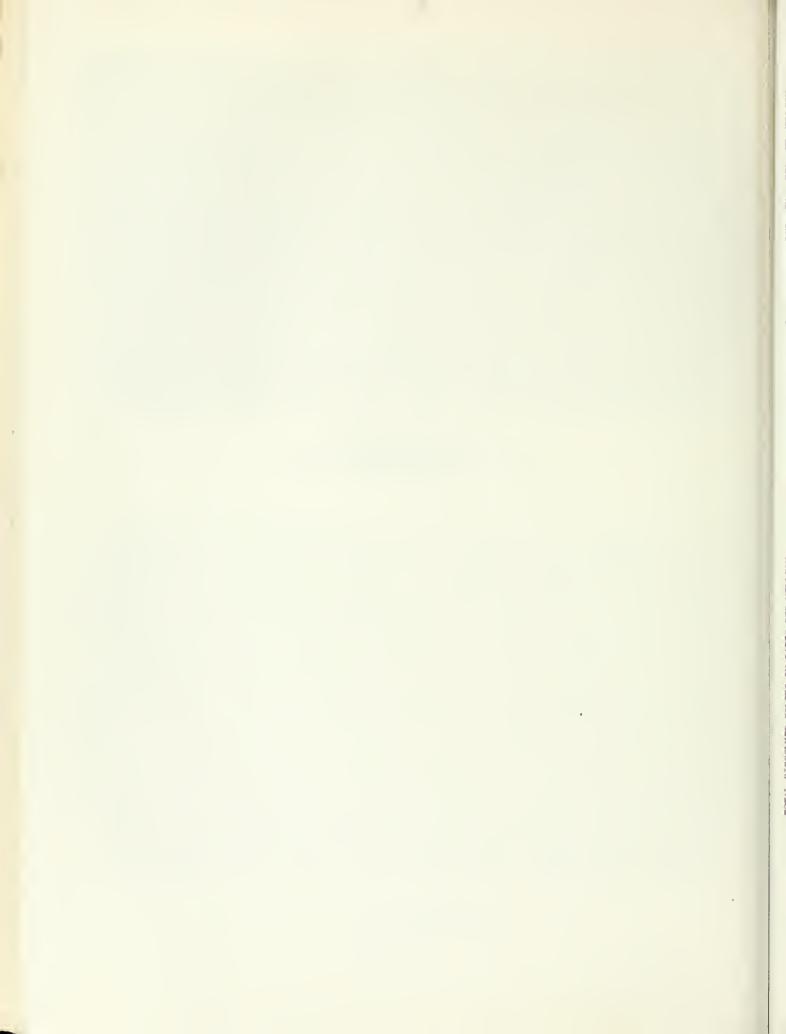
QUALITY CHARACTERISTICS
OF
NEW RIVER AT INTERNATIONAL BOUNDARY
(STATION 57)



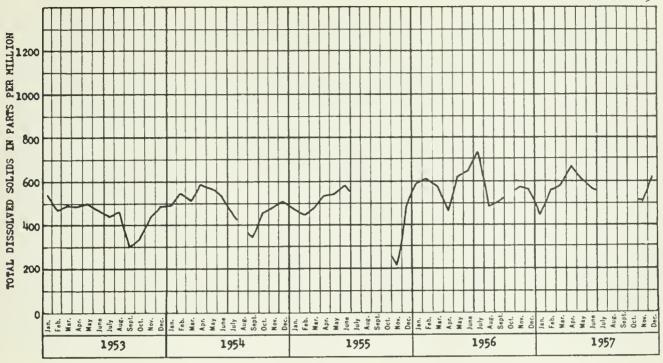
QUALITY CHARACTERISTICS OF NEW RIVER AT WESTMORLAND (STATION 58)



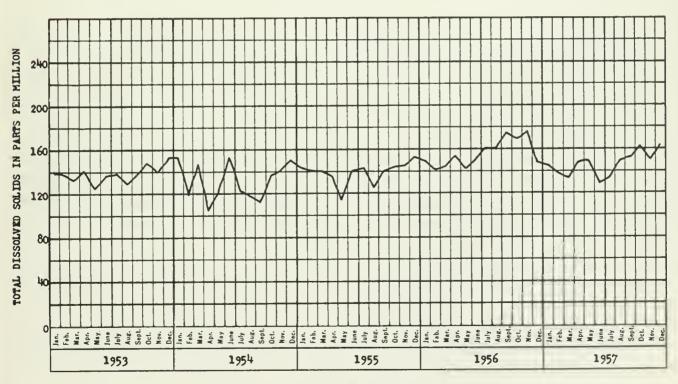
QUALITY CHARACTERISTICS
OF
WHITEWATER RIVER AT WHITEWATER
(STATION 68)





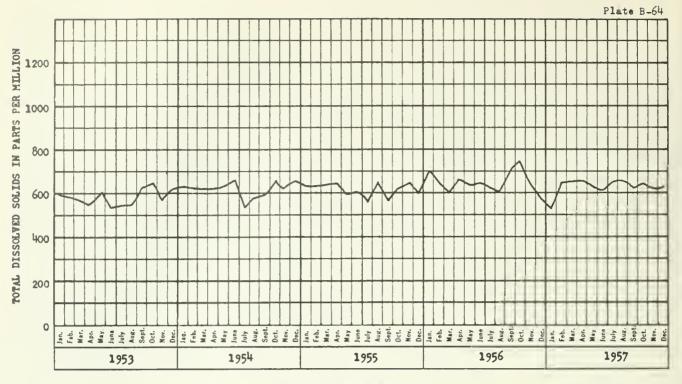


QUALITY CHARACTERISTICS OF CHINO CREEK NEAR CHINO (STATION 86)

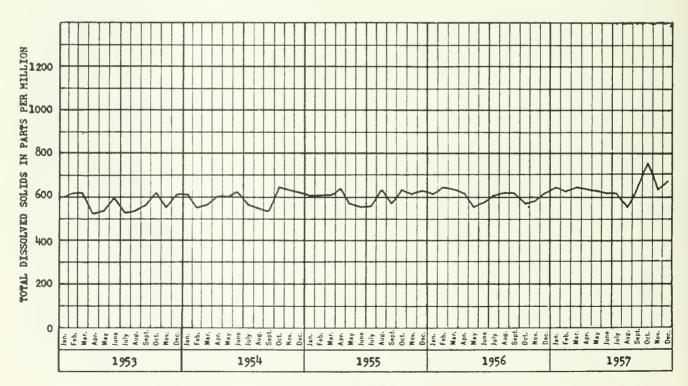


QUALITY CHARACTERISTICS OF SANTA ANA RIVER NEAR MENTONE (STATION 51B)



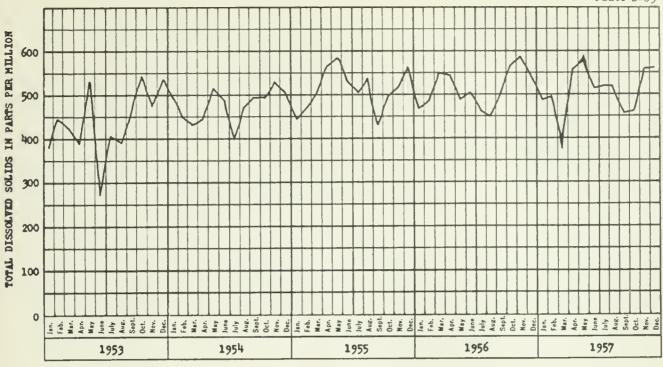


QUALITY CHARACTERISTICS OF SANTA ANA RIVER NEAR PRADO DAM (STATION 51A)

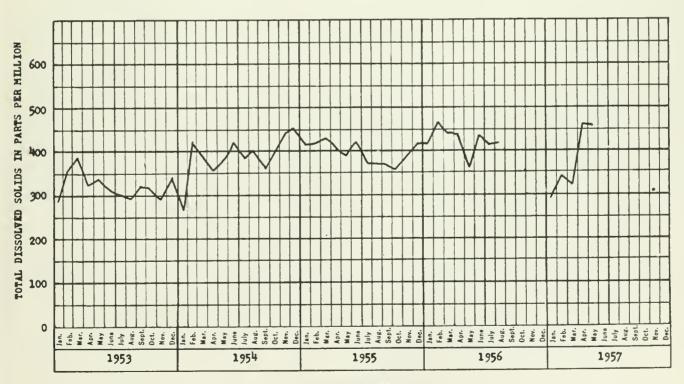


QUALITY CHARACTERISTICS OF SANTA ANA RIVER AT RIVERSIDE (STATION 51D)

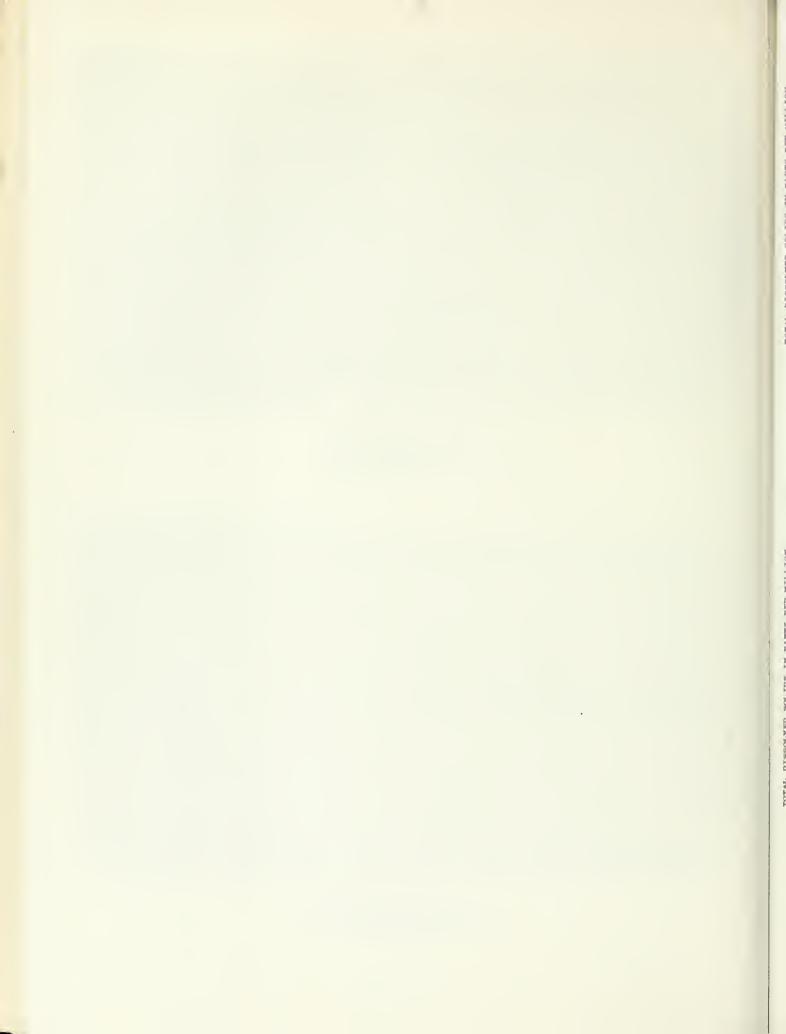


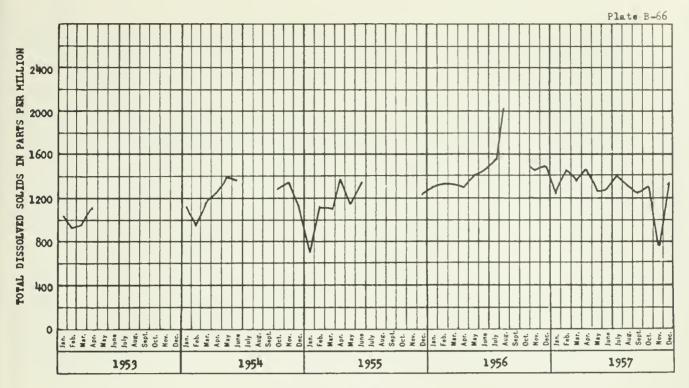


QUALITY CHARACTERISTICS OF WARM CREEK AT COLTON (STATION 50B)

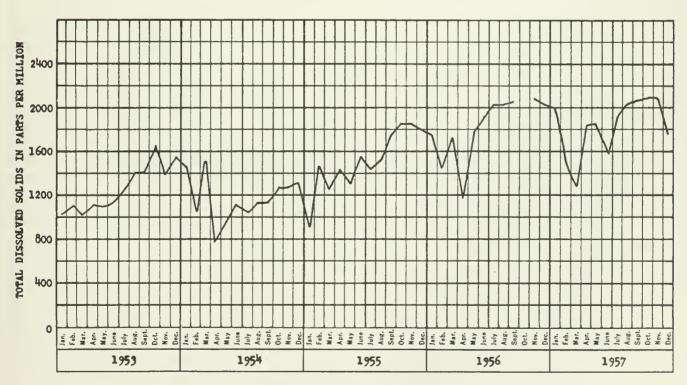


QUALITY CHARACTERISTICS OF WARM CREEK AT SAN BERNARDINO (STATION 50C)

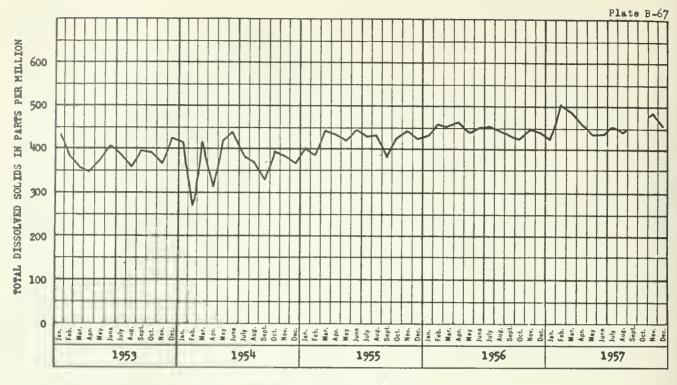




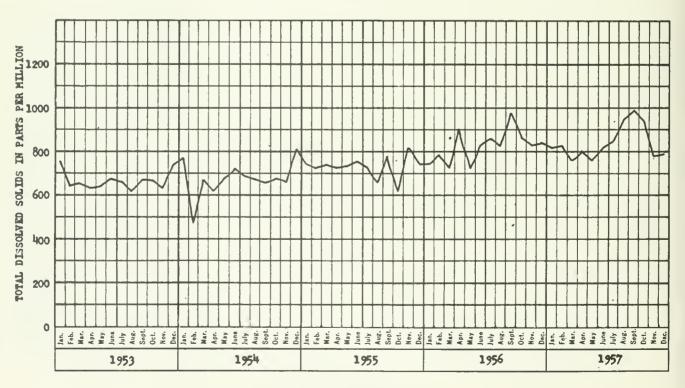
QUALITY CHARACTERISTICS
OF
ESCONDIDO CREEK NEAR HARMONY GROVE
(STATION 63)



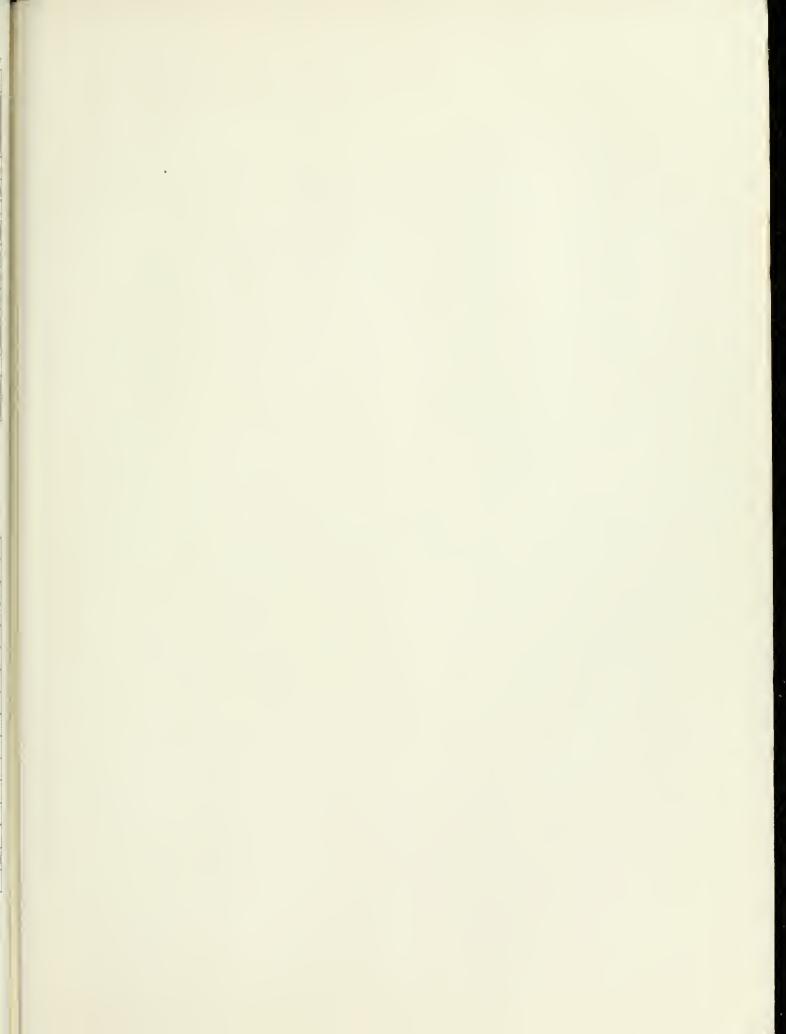
QUALITY CHARACTERISTICS
OF
SAN DIEGO RIVER AT OLD MISSION DAM
(STATION 65)



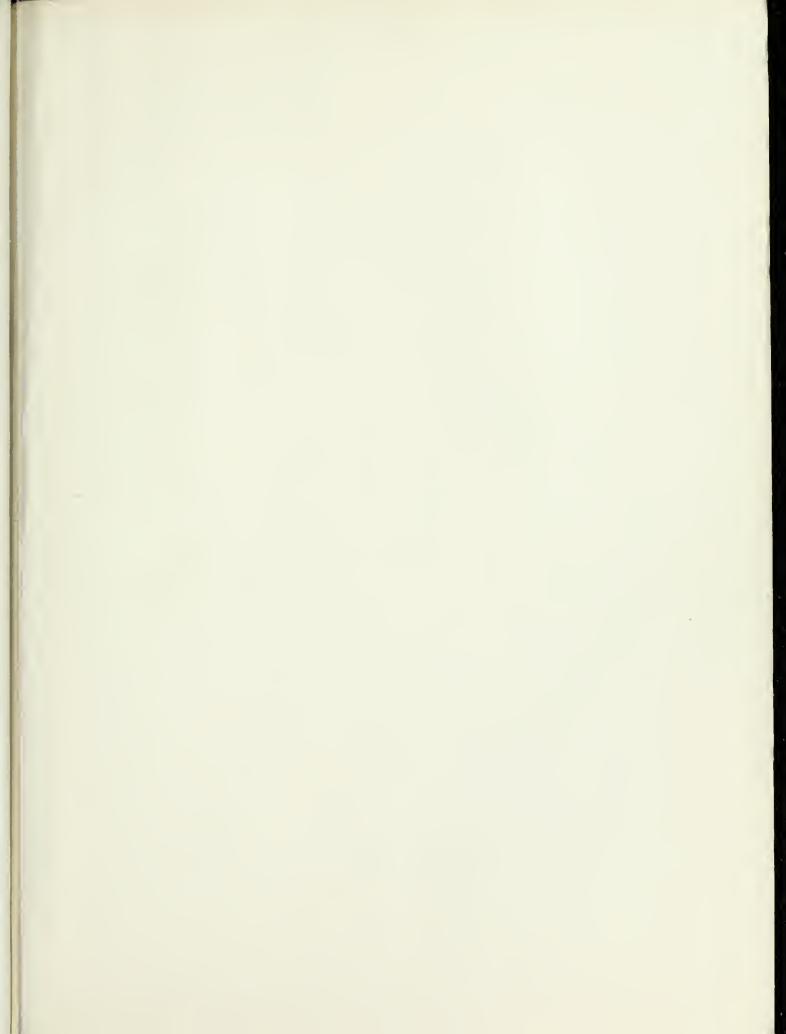
QUALITY CHARACTERISTICS
OF
SAN LUIS REY RIVER NEAR PALA
(STATION 62)



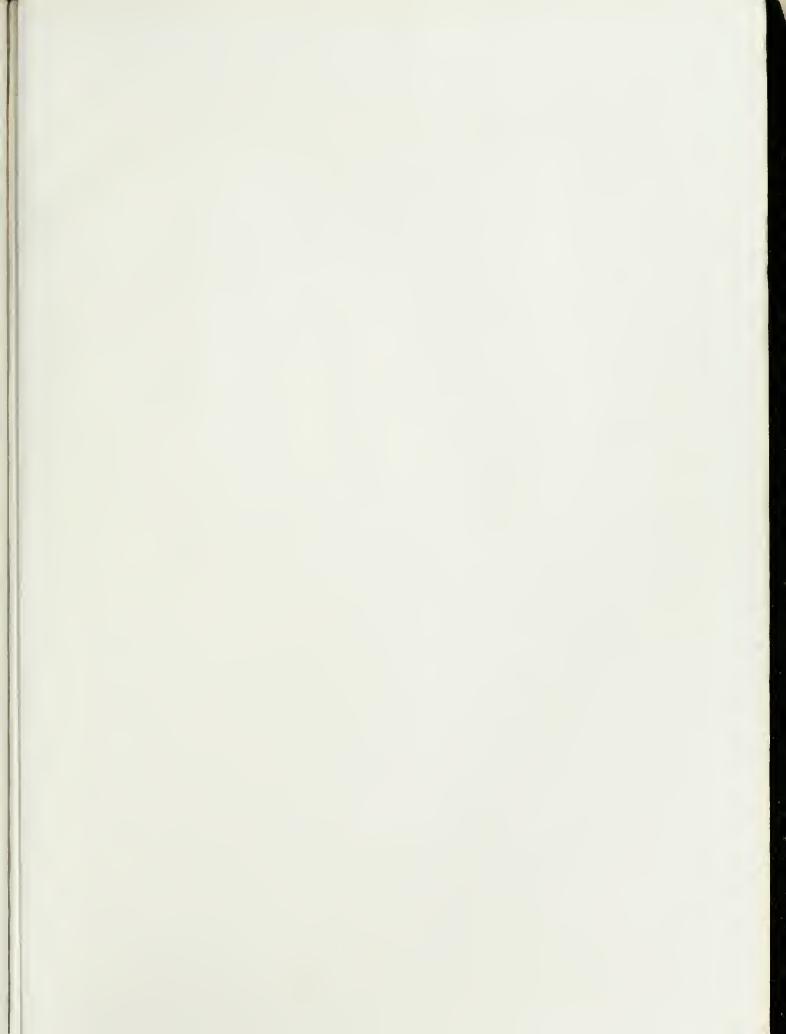
QUALITY CHARACTERISTICS
OF
SANTA MARGARITA RIVER NEAR FALLBROOK
(STATION 510)

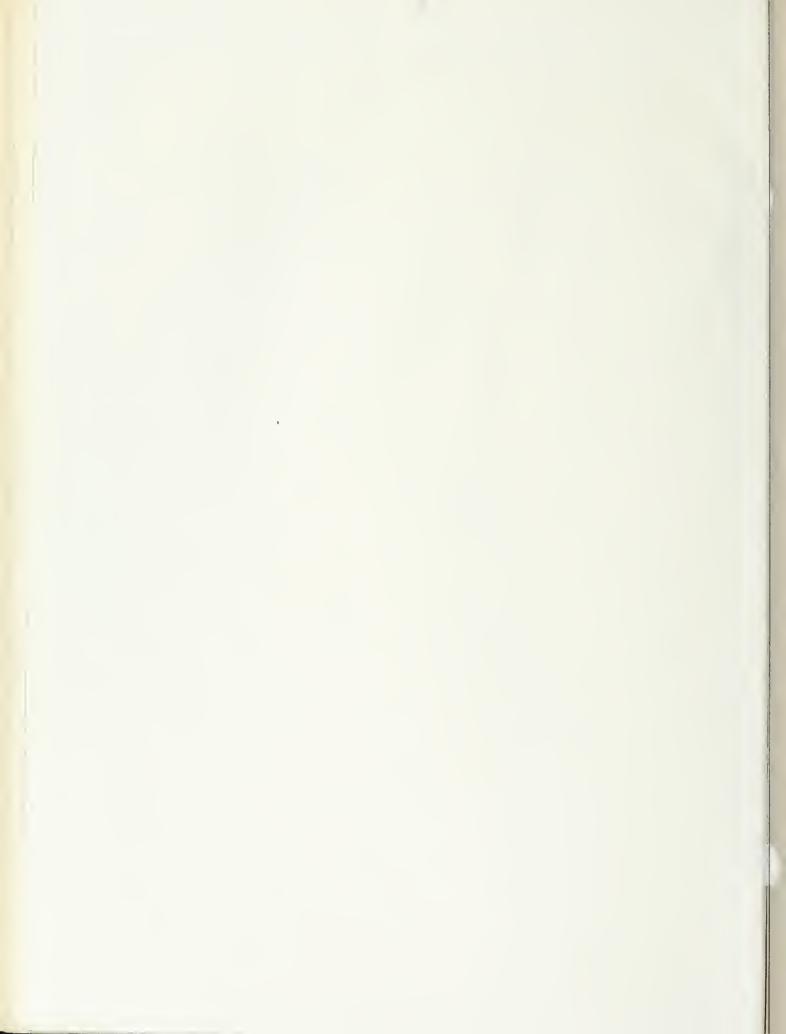


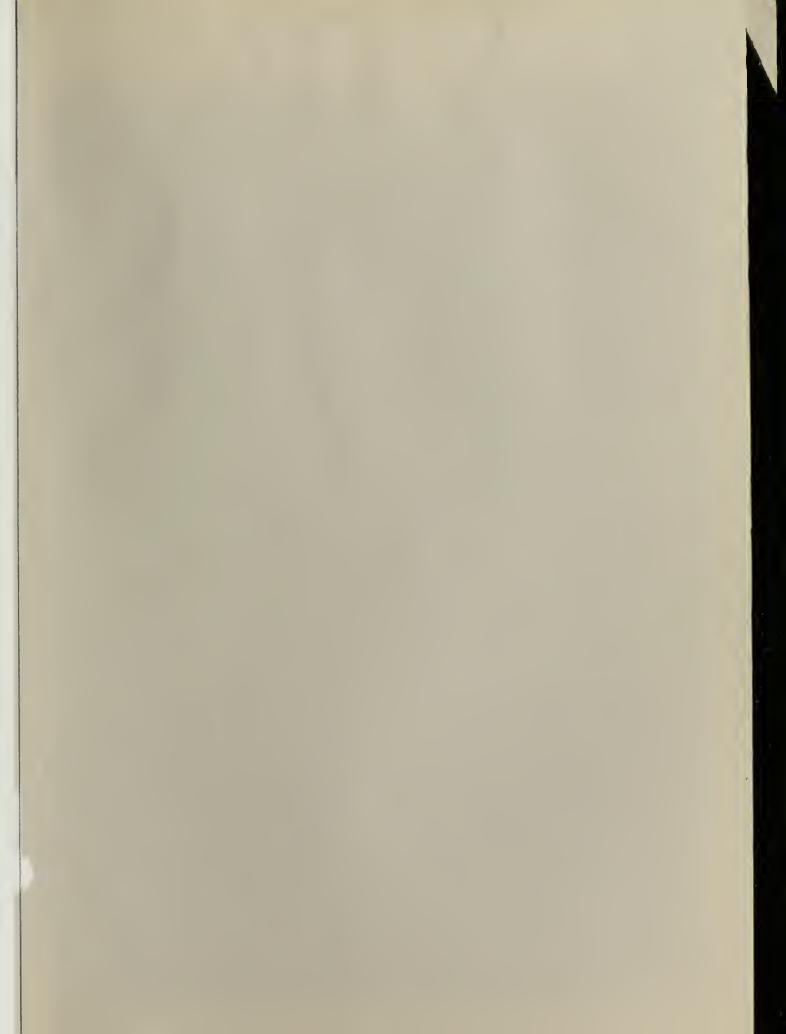












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